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*FROM FUR TO FISH:  
RECONSIDERING THE EVOLUTION OF  
PRIVATE PROPERTY*

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## FROM FUR TO FISH: RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY

KATRINA MIRIAM WYMAN\*

*One of the most enduring questions about private property is why it develops. Strongly influenced by a short article by economist Harold Demsetz, property scholars recently have analyzed the evolution of private property in economic and social terms, as a response to factors such as changes in relative prices, measurement costs, and the size and heterogeneity of user groups. In this Article, Professor Katrina Wyman argues that Demsetzian-inspired accounts of the evolution of private property tend to neglect the role of the state in property rights formation. Building on the extensive scholarship about the evolution of property rights, she emphasizes the need to take seriously the implications of the political process by which private property often is formed.*

*To underscore her theoretical argument about the evolution of private property, Wyman also offers a case study of contemporary property rights formation. For over six decades an international movement has been underway to enclose the oceans, including marine fisheries. Drawing on original research, Wyman examines why individual transferable quotas and similar instruments have been slow to develop in U.S. coastal fisheries in federal waters since national jurisdiction over fisheries was extended to 200 miles from the shore in 1976.*

*In closing, Wyman underscores the richness of Demsetz's pioneering account of private*

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\* Assistant Professor, New York University School of Law. This Article benefited considerably from comments and suggestions from Frank Alcock, Jennifer Arlen, Rachel Barkow, Vicki Been, Kevin Davis, Steve Edwards, Chris Elmendorf, John Ferejohn, Mark Fina, Barbara Fried, Barry Friedman, Clay Gillette, Henry Hansmann, Edward Iacobucci, Lewis Kornhauser, Larry Kramer, Daryl Levinson, Kent Lind, Richard Revesz, Roberta Romano, Richard Stewart, Michael Trebilcock, Ioan Voicu, Jonathan Wiener, Tim Wu, and audiences at workshops at the Duke Center for Environmental Solutions, the New York University School of Law, Stanford Law School, the University of California Davis School of Law, and the University of Toronto Faculty of Law. Jay Shuman in the New York University School of Law library provided invaluable research support. I thank Lesley Coben, Julie Fink, John Kleeberg, Jacob Kreutzer, Jolene Lin, Amanda Lockshin, Daniel Pilarski, and Alex Van Kralingen for superb research assistance, and the editors of the *New York University Law Review* for their many suggestions and patience. The Filomen D'Agostino and Max E. Greenberg Research Fund at New York University School of Law provided generous financial assistance.

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FROM FUR TO FISH:  
RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
**Draft: Do not Cite or Quote w/o Author's Permission**

*property and the scholarship that it has spawned. But she also suggests that there remains a large gap between how private property actually evolves and many of the prevailing theoretical understandings of the development of property rights. She argues in turn that filling this gap requires developing a more robust positive theory of the evolution of private property that takes into account the political process through which private property often is formed, and more systematic empirical research into the development of property rights.*

INTRODUCTION .....	3
I. THEORETICAL ANALYSIS OF	
WHY PRIVATE PROPERTY RIGHTS DEVELOP .....	12
A. <i>Political Institutions</i> .....	14
B. <i>Attributes of Resources</i> .....	20
1. <i>Changes in Prices</i> .....	21
2. <i>Measurement and Monitoring Costs</i> .....	24
3. <i>Degree of Utilization</i> .....	27
C. <i>Characteristics of Resource Users</i> .....	30
1. <i>Heterogeneity</i> .....	31
2. <i>Group Size</i> .....	34
D. <i>Summary</i> .....	36
II. CASE STUDY OF INDIVIDUAL RIGHTS FORMATION IN	
U.S. FEDERAL COASTAL FISHERIES .....	37
A. <i>Background</i> .....	37
1. <i>Three Waves of Ocean Enclosures</i> .....	37
2. <i>Normative Arguments for</i> <i>Individual Transferable Quotas</i> .....	43
B. <i>Prevalence of Tradable Rights in</i> <i>U.S. Federal Coastal Fisheries</i> .....	51
C. <i>Analysis of the Pattern of Tradable Rights Formation</i> .....	63
1. <i>Political Institutions</i> .....	63
a. <i>Regional Fishery Management Councils</i> .....	64
b. <i>Additional Veto Players</i> .....	68
2. <i>Attributes of the Resource</i> .....	78
a. <i>Changes in Prices</i> .....	78
b. <i>Measurement and Monitoring Costs</i> .....	85
c. <i>Degree of Utilization</i> .....	91
3. <i>Characteristics of Resource Users</i> .....	103
a. <i>Heterogeneity</i> .....	104

FROM FUR TO FISH:  
RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
**Draft: Do not Cite or Quote w/o Author's Permission**

b. Group Size .....	110
4. Summary .....	114
CONCLUSION .....	117
APPENDIX: FISH PRICES .....	119
I. DATA SOURCES .....	119
II. TRADABLE RIGHTS FISHERIES .....	120
III. COMPARATORS .....	123
IV. LIMITATIONS .....	129

INTRODUCTION

Almost forty years after it first was published, a short article by economist Harold Demsetz remains the touchstone for explaining why private property develops.<sup>1</sup> Demsetz's seminal article hypothesized that private property emerges within society from the bottom up, in response to underlying economic and social forces.<sup>2</sup> As he succinctly stated, "[i]t is my

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<sup>1</sup> Harold Demsetz, *Toward a Theory of Property Rights*, 57 AM. ECON. REV. 347, 347 (1967) [hereinafter Demsetz, *Toward*] (offering "some guidance for investigating the emergence of property rights"). On the significance of Demsetz's 1967 article, see, e.g., ITAI SENED, *THE POLITICAL INSTITUTION OF PRIVATE PROPERTY* 34 (1997) ("One of the most influential neo-classical theor[ies] of the emergence of property rights is due to Harold Demsetz."); Thomas W. Merrill, *Introduction: The Demsetz Thesis and the Evolution of Property Rights*, 31 J. LEGAL STUD. S331, S331 (2002) ("The point of departure for virtually all efforts to explain changes in property rights is Harold Demsetz's path-breaking article, 'Toward a Theory of Property Rights.' The article is still widely cited and reproduced, especially in first-year property courses in law schools.") (citation omitted).

Demsetz recently offered "a more general theory of property rights" in Harold Demsetz, *Toward A Theory of Property Rights II: The Competition Between Private and Collective Ownership*, 31 J. LEGAL STUD. S653, S653 (2002) [hereinafter Demsetz, *Toward II*]. This more recent piece is fundamentally similar to Demsetz's 1967 article in that both characterize property rights as a response to underlying economic and social factors. See *id.* at S658–59.

<sup>2</sup> In labeling Demsetz's account a bottom-up account, I am drawing on similar distinctions between top-down and bottom-up stories in a range of sources. See ROBERT C. ELLICKSON, *ORDER WITHOUT LAW: HOW NEIGHBORS SETTLE DISPUTES* 137–40 (1991) (drawing on work of Oliver Williamson to discuss legal centralism and non-legal sources of control); KATHRYN FIRMIN-SELLERS, *THE TRANSFORMATION OF PROPERTY RIGHTS IN THE GOLD COAST: AN EMPIRICAL ANALYSIS APPLYING RATIONAL CHOICE THEORY* 7 (1996) (comparing state's supply and societal demand); Lee J. Alston & Pablo T. Spiller, *A Congressional Theory of Indian Property Rights: The Cherokee Outlet*, in *PROPERTY RIGHTS AND INDIAN ECONOMIES: THE POLITICAL ECONOMY FORUM* 85, 86 (Terry L. Anderson ed., 1992) (drawing distinctions between demand and supply); Lee J. Alston et al., *Toward an Understanding of Property Rights*,

FROM FUR TO FISH:  
 RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
 80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
**Draft: Do not Cite or Quote w/o Author's Permission**

thesis . . . that the emergence of new property rights takes place in response to the desires of the interacting persons for adjustment to new benefit-cost possibilities.”<sup>3</sup> Demsetz also provided a now famous example to illustrate his hypothesis that private property develops through private ordering. Drawing on anthropological evidence, he argued that aboriginal peoples in the eighteenth century in what is now Canada developed family hunting territories in response to the growth of the commercial beaver fur trade. Until Europeans began purchasing furs to supply markets back home, beaver had little value, and aboriginal peoples hunted the animal on a limited scale for personal use. Demsetz hypothesized that hunting territories emerged after the value of beaver rose in response to greater demand from the fur trade, because the benefits of dividing up rights to

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*in* EMPIRICAL STUDIES IN INSTITUTIONAL CHANGE 31–33 (Lee J. Alston et al. eds., 1996) (same); David Feeny, *The Development of Property Rights in Land: A Comparative Study*, *in* TOWARD A POLITICAL ECONOMY OF DEVELOPMENT: A RATIONAL CHOICE PERSPECTIVE 272, 273–75 (Robert H. Bates ed., 1988) (offering demand and supply model); Terry L. Anderson & J. Bishop Grewell, *Property Rights Solutions For the Global Commons: Bottom-Up or Top-Down?*, 10 DUKE ENVTL. L. & POL’Y F. 73, 77–84 (1999) (discussing top-down property rights created by governments and bottom-up property rights formed through custom and common law); Robert Brooks et al., *Sudden Changes in Property Rights: The Case of Australian Native Title*, 52 J. ECON. BEHAV. & ORG. 427, 427–29 (2003) (comparing endogenous and exogenous views of emergence of property rights); Richard A. Epstein, *The Allocation of the Commons: Parking on Public Roads*, 31 J. LEGAL STUD. S515, S518 (2002) (distinguishing bottom-up and top-down systems of property). *See generally, e.g.,* LEE J. ALSTON ET AL., TITLES, CONFLICT, AND LAND USE: THE DEVELOPMENT OF PROPERTY RIGHTS AND LAND REFORM ON THE BRAZILIAN AMAZON FRONTIER (1999) (drawing distinctions between demand and supply).

For another typology that categorizes theories of the origins of property rights based on whether the theories emphasize efficiency or distributional considerations as the cause of change, *see, e.g.,* FIRMIN-SELLERS, *supra*, at 11–12; Stuart Banner, *Transitions Between Property Regimes*, 31 J. LEGAL STUD. S359, S360 (2002) (contrasting Demsetz’s efficiency-based theory with alternative, according to which “societies reallocate property rights when some exogenous political realignment enables a powerful group to grab a larger share of the pie”); Saul Levmore, *Property’s Uneasy Path and Expanding Future*, 70 U. CHI. L. REV. 181, 184–86 (2003) [hereinafter Levmore, *Property’s Uneasy Path*] (distinguishing efficiency and interest group theories of property rights); Saul Levmore, *Two Stories About the Evolution of Property Rights*, 31 J. LEGAL STUD. S421, S429–33 (2002) [hereinafter Levmore, *Two Stories*] (describing competing economic efficiency and interest group theories of evolution of property rights); Thomas W. Merrill, *Explaining Market Mechanisms*, 2000 U. ILL. L. REV. 275, 275–98 (2000) (distinguishing and then synthesizing wealth maximization and distributional theories for emergence of market mechanisms); Merrill, *supra* note 1, at S336 (discussing approach by other scholars of incorporating distributional considerations into Demsetz’s model); Ning Wang, *The Coevolution of Institutions, Organizations, and Ideology: The Longlake Experience of Property Rights Transformation*, 29 POL. & SOC’Y 415, 417–20 (2001) (identifying and analyzing both economic and distributional theories).

<sup>3</sup> Demsetz, *Toward*, *supra* note 1, at 350.

FROM FUR TO FISH:  
RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
**Draft: Do not Cite or Quote w/o Author's Permission**

beaver increased.<sup>4</sup>

What Demsetz neglected to specify is the mechanism by which the underlying economic and social forces he identified as the impetus for the development of private property ultimately are translated into individual rights. Instead, his article simply implied that “interacting persons” somehow agree spontaneously to establish private property.<sup>5</sup> Consistent

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<sup>4</sup> *Id.* at 351–53. Since Demsetz’s article was published, there has been new research by anthropologists and others about the origins of the native hunting territories. For a sample of the recent research, see Paul Nadasdy, “Property” and Aboriginal Land Claims in the Canadian Subarctic: Some Theoretical Considerations, 104 *AM. ANTHROPOLOGIST* 247, 249 (2002) (discussing debate over Algonquian land tenure); Henry E. Smith, *Semicommon Property Rights and Scattering in Open Fields*, 29 *J. LEGAL STUD.* 131, 143 (2000) (referring to work of John McManus in arguing that semicommons may have existed in Demsetz’s example of family hunting territories). See generally Colloquium, *Who Owns the Beaver? Northern Algonquian Land Tenure Reconsidered*, 28 *ANTHROPOLOGICA* 7 (1986) (discussing history of debate and disagreements in field of Algonquian land tenure in light of recent developments, such as more intensive regional, ethnographic, and historical studies); Harvey A. Feit, *The Construction of Algonquian Hunting Territories: Private Property as Moral Lesson, Policy Advocacy, and Ethnographic Error*, in 7 *HISTORY OF ANTHROPOLOGY: COLONIAL SITUATIONS* 109 (George W. Stocking, Jr. ed., 1991) (providing historical analysis of Frank Speck’s anthropological work studying Algonquian hunting territories); Ann M. Carlos & Frank D. Lewis, *Property Rights, Competition, and Depletion in the Eighteenth-Century Canadian Fur Trade: The Role of the European Market*, 32 *CAN. J. ECON.* 705 (1999) (examining causes of depletion of beaver in certain areas after advent of European fur trade); Harvey A. Feit, *Les Territoires de Chasse Algonquiens avant leur ‘Découverte’? Études et Histoires sur l’Épuisement du Gibier, les Incendies de Forêt et la Sociabilité de la Chasse*, 34 *RECHERCHE AMÉRINDIENNES AU QUÉBEC* (forthcoming 2004) [hereinafter Feit, *Les Territoires*] (arguing that Algonquian hunting territories could have existed before arrival of Europeans).

In a forthcoming article, anthropologist Harvey Feit reviews the scholarship on the origins of the hunting territories and indicates that their origins remain a matter of debate. According to Feit, he and others suggest that the territories predated contact with Europeans, while other scholars maintain that the territories resulted from this contact. Feit, *Les Territoires*, *supra*, at 1.

<sup>5</sup> Demsetz, *Toward*, *supra* note 1, at 350. For sources emphasizing Demsetz’s lack of attention to the mechanism by which property rights evolve, see Banner, *supra* note 2, at S360 (speculating on mechanism); Epstein, *supra* note 2, at S519 (noting that Demsetz’s account “offers only before and after snapshots of the system of property relations, which ignores the gory details of transition”); James E. Krier, *The Tragedy of the Commons, Part Two*, 15 *HARV. J.L. & PUB. POL’Y* 325, 338 (1992) (arguing that Demsetz “implicitly” assumes “that a community plagued by noncooperation can improve its condition by cooperating”); Merrill, *supra* note 1, at S336 (describing Demsetz’s theory as offering “before-and-after snapshots of a society in which changes in relative resource values give rise to changes in property institutions”); Richard A. Posner, *Some Uses and Abuses of Economics in Law*, 46 *U. CHI. L. REV.* 281, 289 (1979) (noting, in discussion of efficiency hypothesis, that Demsetz discusses evolution of private property without describing mechanism by which it emerges, or why it does so); Carol M. Rose, *Property as Storytelling: Perspectives from Game Theory, Narrative Theory, Feminist Theory*, 2 *YALE J.L. & HUMAN.* 37, 51 (1990) (arguing that classical property theorists use narratives “to slide smoothly over the cooperative gap”).

FROM FUR TO FISH:  
RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
**Draft: Do not Cite or Quote w/o Author's Permission**

with his silence on the mechanism for change, Demsetz does not stop to ponder how the aboriginal communities he discusses allocated hunting territories among family units. He merely assumes that communities agreed to do so as the value of beaver increased.<sup>6</sup> In eliding an explanation of the process which gives rise to new property rights arrangements, Demsetz's article shares a failing common to functional accounts of institutional change in general: It assumes that demand generates its own supply.<sup>7</sup>

In the decades since the publication of Demsetz's article, scholars have attempted to fill the void left by its silence on the mechanism for establishing private property. Some theorists have continued to assume that private property largely is created from the bottom up, in response to underlying economic and social conditions. In defense of this notion, game-theoretic accounts have been offered to establish that private property may emerge spontaneously within society.<sup>8</sup> But these accounts ultimately do not offer a generalizable, positive explanation for the emergence of private property because they typically are premised on strong assumptions, often assuming away, for example, the fact that private parties typically interact in the presence of a state.<sup>9</sup>

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Demsetz himself has recognized the limits of his 1967 article. See Krier, *supra*, at 339 n.44 (noting that, when contradiction in his article was mentioned, Professor Demsetz replied, "That's why I called it 'Toward a Theory of Property Rights!'").

<sup>6</sup> Demsetz, *Toward*, *supra* note 1, at 352.

<sup>7</sup> See Robert O. Keohane, *Governance in a Partially Globalized World: Presidential Address, American Political Science Association, 2000*, 95 AM. POL. SCI. REV. 1, 4 (2001) (offering general warning about "[t]he inadequacy of functional theories"). Above, I paraphrase Keohane's statement that "[o]ne can imagine a simple functional theory of global institutions by which the demand for governance, generated by globalism, creates its own supply." *Id.* at 4. Demsetz's explanation also might be described as an "invisible hand explanation" for the transformation of property rights. See ROBERT NOZICK, ANARCHY, STATE AND UTOPIA 18–22 (1974) (discussing invisible hand explanations).

<sup>8</sup> See, e.g., Robert C. Ellickson, *Property in Land*, 102 YALE L.J. 1315, 1320–21, 1321 n.19, 1365–66 (1993) (offering positive economic theory about evolution of property rights similar to Demsetz's that relies on repeat play, although predicting only "close-knit groups" of repeat players will evolve "cost-minimizing" property arrangements).

<sup>9</sup> In addition to assuming away the state, game-theoretic explanations that point to repeat play within society to account for private property also may make assumptions about the ease of interpersonal communication that do not apply in modern societies characterized by high levels of market exchange. Moreover, it is unclear that many societies in the past provided opportunities for repeat play sufficient to enforce a private property regime, given historical limitations on communications and transportation infrastructure.

For overviews of the potential and the limits of game-theoretic explanations for the origins of private property, see THRÁINN EGGERTSSON, ECONOMIC BEHAVIOR AND INSTITUTIONS 299–

FROM FUR TO FISH:  
RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
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Other scholars have departed from Demsetz's implicit premise that private property is created endogenously within society and suggested instead that it is the product of a political process.<sup>10</sup> But even these scholars often have remained heavily influenced by Demsetz and have tended to portray that political process as one in which rights are rearranged through voluntary contracting between affected parties functioning much like market ordering.<sup>11</sup> Analyzing the political arena as if

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301 (1990) (describing suitability of game theory in modeling different factual situations); SENED, *supra* note 1, at 67–73 (discussing game-theoretic approaches); *see also* AVINASH K. DIXIT, LAWLESSNESS AND ECONOMICS: ALTERNATIVE MODES OF GOVERNANCE 20, 150–52, 154 (2004) (referring to difficulties of modeling institutional change in game-theoretic terms).

<sup>10</sup> *See* JEAN ENSMINGER, MAKING A MARKET: THE INSTITUTIONAL TRANSFORMATION OF AN AFRICAN SOCIETY 123–42 (1992) (emphasizing role of politics in discussing evolution of Orma property rights); SHAWN EVERETT KANTOR, POLITICS AND PROPERTY RIGHTS: THE CLOSING OF THE OPEN RANGE IN THE POSTBELLUM SOUTH 128–43 (1998) (tracing political process by which livestock enclosure was accomplished in postbellum Georgia); SENED, *supra* note 1, at 1 (arguing that property rights are created through political process); Gary D. Libecap, *Distributional Issues in Contracting for Property Rights*, 145 J. INST. & THEOR. ECON. 6, 7 (1989) (“Property rights are political institutions.”); Robert P. Merges, *Intellectual Property Rights and the New Institutional Economics*, 53 VAND. L. REV. 1857, 1868 (2000) (“What Demsetz omitted, of course, was politics. Only governments can grant property rights.”). *See generally* ALSTON ET AL., *supra* note 2 (emphasizing political character of rights in examining evolution of property rights in Brazilian Amazon frontier); EGGERTSSON, *supra* note 9 (emphasizing limits of attempting to explain property rights without addressing political considerations); GARY D. LIBECAP, CONTRACTING FOR PROPERTY RIGHTS (1989) (characterizing property as determined through political process); Alston & Spiller, *supra* note 2 (using demand and supply-side framework to examine evolution of Indian property rights); Alston et al., *supra* note 2 (noting that property rights typically are created by governments); Epstein, *supra* note 2 (distinguishing bottom-up and top-down systems of property rights).

Just as game theory has been used to explain the emergence of private property within society, so it also has been used in political process accounts of the evolution of property rights. When political accounts are modeled, however, the players are, or include, political actors, rather than simply private parties. *See generally* SENED, *supra* note 1 (deploying game theory in offering political process account of formation of property rights). Moreover, political process accounts not framed in game-theoretic terms might be modeled in this way. *See* DIXIT, *supra* note 9, at 127 (arguing that Libecap's political process account of property rights formation “support[s] the results of the theory of repeated games”); ELINOR OSTROM, GOVERNING THE COMMONS: THE EVOLUTION OF INSTITUTIONS FOR COLLECTIVE ACTION 23 (1990) (“In the most general sense, all institutional arrangements can be thought of as games in extensive form.”).

<sup>11</sup> *See, e.g.*, LIBECAP, *supra* note 10, at 4, 10, 16, 28 (arguing that property is determined through political process); *id.* at 4, 11 (using “contracting” to describe efforts to modify property rights by private individuals and through political negotiations); *id.* at 9–28 (offering single analytical framework for examining private and political contracting over property rights); *id.* at 11–12 (implying that proposed changes in property rights must be Pareto superior in suggesting that “[t]he bargaining parties must see their welfare improved or at least made no worse off”); Libecap, *supra* note 10, at 7, 10 (similarly defining contracting as “private, intragroup



FROM FUR TO FISH:  
RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
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it were a market overlooks the fact that the political context involves fundamentally different decisionmaking rules and attendant differences in the conditions auspicious for institutional change.<sup>12</sup>

In particular, the market and political contexts differ about whether decisions are made unanimously. While directly affected parties must agree to rearrange rights through market transactions, many directly affected parties may not be consulted personally when rights are rearranged through political processes, let alone given a veto over the decision to change.<sup>13</sup> Since the political process does not require unanimity to proceed, it is important, in determining the probability of change, to analyze the expected distribution of the benefits and costs of private property among the influential interest groups who are likely to be consulted.<sup>14</sup> The different decisionmaking rules at work in the political process also cast into doubt the conventional wisdom about the variables most conducive to rearranging property rights, such as low measurement costs,<sup>15</sup> excessive levels of resource utilization,<sup>16</sup> and small numbers of homogeneous resource users.<sup>17</sup> Moreover, recognizing the significance of political decisionmaking rules underscores the need to examine these rules closely in any particular context as variations in them may affect the success of rearranging rights. In particular, the more the collective-choice rules tend toward mandating the unanimity of the affected parties to alter rights in the market, the more difficult it may be to rearrange rights politically.<sup>18</sup>

Building on existing scholarship about the evolution of property rights, this Article underscores the political character of the process through which private property typically is established and considers the

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negotiations” and lobbying of “government officials”). *But see* Libecap, *supra* note 10, at 10–12 (implying that unanimity, or less than unanimity, may be required to rearrange property rights).

<sup>12</sup> For a similar warning about the dangers of analogizing government and private actors in a different context, see generally Daryl J. Levinson, *Making Government Pay: Markets, Politics, and the Allocation of Constitutional Costs*, 67 U. CHI. L. REV. 345 (2000) (arguing that governments differ from private firms in that governments respond to votes rather than dollars and emphasizing significance of this insight for constitutional remedies).

<sup>13</sup> In describing the decisionmaking rule in the market, I do not intend to deny the existence of externalities.

<sup>14</sup> *See infra* Parts I.B.1. & II.C.2.a.

<sup>15</sup> *See infra* Parts I.B.2 & II.C.2.b.

<sup>16</sup> *See infra* Parts I.B.3 & II.C.2.c. For simplicity, this Article uses the term “resource” to refer to goods and resources generally.

<sup>17</sup> *See infra* Parts I.C.1 & II.C.3.a (discussing heterogeneity); *infra* Parts I.C.2 & II.C.3.b (discussing group size).

<sup>18</sup> *See infra* Parts I.A & II.C.1.

FROM FUR TO FISH:  
 RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
 80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
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implications of that political decisionmaking process for positive theories about the emergence of private property. The state's role in supplying property through the political process is apparent historically.<sup>19</sup> It is even more readily observable in the modern administrative state.<sup>20</sup> Indeed, many of the liveliest contemporary debates concerning property rights are about whether to create private rights in resources traditionally owned by the public through the state, such as air, water, fisheries, and public lands.<sup>21</sup>

In this Article, I offer theoretical and empirical arguments for reorienting prevailing positive theories of the evolution of property rights to reflect the significance of the decisionmaking rules in the political process by which private property typically is formed. I begin by

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<sup>19</sup> See generally FIRMIN-SELLERS, *supra* note 2 (describing evolution of property rights in Ghana under British rule); KANTOR, *supra* note 10 (tracing history of livestock enclosure in postbellum Georgia); Fred S. McChesney, *Government As Definer of Property Rights*, in PROPERTY RIGHTS AND INDIAN ECONOMIES: THE POLITICAL ECONOMY FORUM 109 (Terry L. Anderson ed., 1992) [hereinafter McChesney, *Government As Definer*] (examining history of U.S. policy of allotment in force between 1887 and 1934); Fred S. McChesney, *Government As Definer of Property Rights: Tragedy Exiting the Commons?*, in PROPERTY RIGHTS: COOPERATION, CONFLICT, AND LAW 227 (Terry L. Anderson & Fred S. McChesney eds., 2003) [hereinafter McChesney, *Tragedy Exiting*] (using various examples in discussing government's role in creating property rights); Alston & Spiller, *supra* note 2 (discussing evolution of property rights in Cherokee Outlet in Oklahoma during nineteenth century); Zeynep K. Hansen & Gary D. Libecap, *Small Farms, Externalities, and The Dust Bowl of the 1930s*, 112 J. POL. ECON. 665 (2004) (analyzing causes of Dust Bowl of 1930s); Sumner J. La Croix, *Property Rights and Institutional Change During Australia's Gold Rush*, 29 EXPLORATIONS ECON. HIST. 204 (1992) (describing gold rush in nineteenth century Australia); Sumner J. La Croix & James Roumasset, *The Evolution of Private Property in Nineteenth-Century Hawaii*, 50 J. ECON. HIST. 829 (1990) (describing property rights in land in Hawaii); Frank A. Sharman, *An Introduction to the Enclosure Acts*, 10 J. LEGAL HIST. 45 (1989) (describing enclosure in England).

<sup>20</sup> See SENED, *supra* note 1, at 155–77 (discussing private property rights in airport landing slots); Merges, *supra* note 10, at 1867 (noting that property rights are created by state in discussing theoretical approaches relevant to intellectual property rights). See generally ALSTON ET AL., *supra* note 2 (discussing role of federal and state agencies in evolution of property rights in Brazilian Amazon frontier during recent decades); James Boyle, *The Second Enclosure Movement and the Construction of the Public Domain*, 66 L. & CONTEMP. PROBS. 33 (2003) (discussing intellectual property rights); Epstein, *supra* note 2 (discussing parking permits); Thomas W. Hazlett, *Assigning Property Rights to Radio Spectrum Users: Why Did FCC License Auctions Take 67 Years?*, 41 J.L. & ECON. 529 (1998) (discussing spectrum access rights); Michael A. Heller, *The Tragedy of the Anticommons: Property in the Transition From Marx to Markets*, 111 HARV. L. REV. 621 (1998) (discussing post-Communist property transitions and other contexts).

<sup>21</sup> See, e.g., James L. Huffman, *The Inevitability of Private Rights in Public Lands*, 65 U. COLO. L. REV. 241 (1994) (suggesting that debates about allocating access to public lands inevitability are about distributing benefits to private interests); see also *infra* note 95 (citing sources advocating tradable environmental allowances in various natural resources).

FROM FUR TO FISH:  
RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
**Draft: Do not Cite or Quote w/o Author's Permission**

identifying a framework for analyzing the effect of decisionmaking rules on the probability of change. Then I isolate five standard hypotheses about why private property develops, drawing on a wide range of scholarship, especially the work of economist Gary Libecap, Demsetz's most sophisticated successor. Although much evolution of property scholarship is about the allocation of property in organized societies rather than the state of nature,<sup>22</sup> it nonetheless undervalues the political dimension of property rights formation. I recast the five standard hypotheses to reflect the effects of decisionmaking rules in the political process.

To underscore my theoretical arguments about why property rights evolve, I offer a case study of contemporary property rights formation. Reflecting Demsetz's use of property rights formation in beaver to illustrate his hypothesis, there is a strong emphasis in the evolution of property rights scholarship on the development of private property in natural resources. My case study examines why individual tradable rights have been slow to evolve in U.S. coastal fisheries in federal coastal waters since national jurisdiction over fisheries was extended to 200 miles from the shore in 1976.<sup>23</sup>

For over six decades, an international movement has been underway to enclose the oceans. This enclosure movement has progressed in a series of waves, reminiscent of the famous enclosures of English common lands.<sup>24</sup> In the first wave, countries began claiming national property rights over ever-larger expanses of the oceans, including marine fisheries, after the end of the Second World War.<sup>25</sup> Then countries began subdividing national property rights in fisheries domestically into smaller-scale communal

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<sup>22</sup> This includes Demsetz's pioneering article, which explicitly notes that its hypothesis is relevant to the emergence of property in "Western societies." Demsetz, *Toward*, *supra* note 1, at 350.

<sup>23</sup> This Article uses various terms to refer to individual transferable quotas and analogous instruments, including individual quotas, individual rights, individual tradable rights and tradable rights. I define individual transferable quotas and analogous instruments *infra* note 127. Except where warranted by the context, I do not use the term individual fishing quota. A defined term in U.S. fisheries regulation, individual fishing quota may refer to permits which are not tradable. See 16 U.S.C. § 1802(21) (2000) (defining individual fishing quota). For clarity, I do not consider limited entry licenses to be equivalent to individual transferable quotas and they are not among the rights whose evolution in fisheries is examined empirically in this Article. See *infra* text accompanying notes 91–92 (discussing concept of limited entry).

<sup>24</sup> See *infra* note 84 and accompanying text for further discussion of the parallel between the enclosure of land and of the oceans.

<sup>25</sup> See *infra* notes 86–89 and accompanying text for further discussion of the extension of national jurisdiction.

FROM FUR TO FISH:  
 RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
 80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
**Draft: Do not Cite or Quote w/o Author's Permission**

regimes in a second wave of enclosures.<sup>26</sup> For over thirty years, economists and others have been advocating a third wave of enclosure through the creation of individual tradable rights.<sup>27</sup> To date, however, the advocates of individual transferable quotas have met with only limited success.

This Article is the first attempt to analyze comprehensively the pattern of individual tradable rights formation in U.S. coastal fisheries in federal waters since national jurisdiction was extended to 200 miles in 1976. It is also the first attempt to explain that pattern in terms of the various theories accounting for the evolution of private property.<sup>28</sup> Thus this Article aims to

<sup>26</sup> See *infra* notes 90–92 and accompanying text for further discussion of the federal creation of communal regimes within the United States.

<sup>27</sup> See *infra* note 94 for sources addressing the intellectual history of individual transferable quotas; *infra* notes 95–97 and accompanying text for descriptions of the concept of individual transferable quotas; and *infra* notes 99–105 and accompanying text for an overview of the normative arguments in support of individual transferable quotas.

Notably, fisheries played a prominent role in the intellectual development of the normative economic thesis that private property is often the most efficient method of allocating resources. In particular, observations about fisheries were employed in the initial efforts to formalize the economic diagnosis of the problems with common-pool resources. These are resources from which it is difficult to exclude others, and which are subtractable, meaning that use by one person diminishes the amount available for others. See, e.g., LIBECAP, *supra* note 10, at 12 (noting that “classic articles outlining common pool problems . . . are built around open access fisheries”); William W. Buzbee, *Recognizing the Regulatory Commons: A Theory of Regulatory Gaps*, 89 IOWA L. REV. 1, 8 (2003) (referring to “the classic common pool resources of fisheries”); Thomas Dietz et al., *The Drama of the Commons*, in THE DRAMA OF THE COMMONS 3, 9 (Elinor Ostrom et al. eds., 2002) (“The influential work of Gordon (1954) and Schaefer (1957) drew attention to the economic factors in the management of one type of common-pool resource—fisheries.”); Thomas W. Merrill & Henry E. Smith, *Optimal Standardization in the Law of Property: The Numerus Clausus Principle*, 110 YALE L.J. 1, 32 n.124 (2000) (citing sources discussing fisheries in tracing history of scholarly inquiry into problems of common-pool resources); Carol M. Rose *Environmental Controls: Management Strategies for Common Resources*, 1991 DUKE L.J. 1, 3 n.5 (1991) (“The idea of the tragedy of the commons may have had its beginnings with the study of fishing.”). Even Coase addressed the problems with common-pool resources in the context of fisheries. See R.H. Coase, *Discussion*, in ECONOMICS OF FISHERIES MANAGEMENT: A SYMPOSIUM 60–61 (A.D. Scott ed., 1970) (briefly commenting on paper about fisheries).

<sup>28</sup> The closest project I have found is a political science Ph.D. dissertation that Professor Robert Keohane recently brought to my attention: Frank Alcock, *Bargaining, Uncertainty and Property Rights in North Atlantic Fisheries* (2003) (unpublished Ph.D. dissertation, Duke University) (on file with the *New York University Law Review*). The scope of Alcock’s project is different. He attempts to explain the development of property rights in fisheries in Iceland, Norway, Atlantic Canada, and New England since the creation of Exclusive Economic Zones (EEZs).

In addition, Alcock implicitly approaches the subject largely from a bottom-up perspective, focusing primarily on the implications of uncertainty among fishers about the distributional consequences of rearranging property rights and industry heterogeneity, especially the degree of vertical integration of harvesting and processing operations. See *id.* at 5–7.

FROM FUR TO FISH:  
RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
**Draft: Do not Cite or Quote w/o Author's Permission**

contribute to the positive scholarship about property rights on both empirical and theoretical levels.

The remainder of this Article is divided into two Parts. Part I discusses in theoretical terms why private property rights evolve. Part II offers the case study of individual tradable rights formation in U.S. federal coastal fisheries as a vehicle for testing the theoretical claims advanced in Part I. The Article concludes by discussing the need to develop and to test systematically more robust theories that reflect the political character of property rights formation.

I

THEORETICAL ANALYSIS OF WHY PRIVATE PROPERTY RIGHTS DEVELOP

Harold Demsetz squarely located the impetus for establishing individual property rights in private ordering.<sup>29</sup> “[T]he emergence of new property rights,” he argued, “takes place in response to the desires of interacting persons for adjustment to new benefit-cost possibilities.”<sup>30</sup> Since the publication of Demsetz’s hypothesis, many scholars have offered similar largely endogenous accounts of the origins of private property, pointing to underlying economic and social conditions as the primary drivers of change.<sup>31</sup>

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<sup>29</sup> See, e.g., SENED, *supra* note 1, at 35 (“Demsetz’s argument does not assign any role for governments in the evolution and maintenance of property rights.”); James E. Krier & W. David Montgomery, *Resource Allocation, Information Cost and the Form of Government Intervention*, 13 NAT. RESOURCES J. 89, 102 (1973) (“Demsetz suggests that within the realm of the private market, institutions will naturally develop such that private bargains will work to allocate resources as efficiently as possible, since all bargains in which gains from trade exceed the costs of realizing them will take place.”). *But see* Harold Demsetz, *Some Aspects of Property Rights*, 9 J.L. & ECON. 61, 62 (1966) (referring to possibility that government might play role in deciding “which individuals possess what property rights” and protecting property rights, although also suggesting these functions could be performed by courts or private individuals themselves, respectively).

<sup>30</sup> Demsetz, *Toward*, *supra* note 1, at 350.

<sup>31</sup> For examples of bottom-up accounts of private property that echo Demsetz’s account to varying degrees, see generally LIBECAP, *supra* note 10 (offering framework for analyzing why property rights evolve and four case studies about evolution of property rights in natural resources); Terry L. Anderson & P.J. Hill, *The Evolution of Property Rights: A Study of the American West*, 18 J.L. & ECON. 163 (1975) (elaborating and testing theory in context of property rights development in American Great Plains); C. Leigh Anderson & Eugene Swimmer, *Some Empirical Evidence on Property Rights of First Peoples*, 33 J. ECON. BEHAV. & ORG. 1 (1997) (considering access rights among indigenous peoples); David E. Ault & Gilbert L. Rutman, *Land Scarcity, Economic Efficiency, and African Common Law*, 12 RES. L. & ECON. 33 (1989) (arguing that, while common law evolved efficient rules as land became more scarce in British-ruled areas of Africa, governments did not consistently adopt wealth-maximizing rules); Robert

FROM FUR TO FISH:  
 RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
 80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
**Draft: Do not Cite or Quote w/o Author's Permission**

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D. Cooter, *Inventing Market Property: The Land Courts of Papua New Guinea*, 25 L. & SOC'Y REV. 759 (1991) (implicitly endorsing largely economic account of why property evolves); Ellickson, *supra* note 8 (offering modified version of Demsetz hypothesis, arguing that close-knit groups evolve cost-minimizing land regimes); Gershon Feder & David Feeny, *Land Tenure and Property Rights: Theory and Implications for Development Policy*, 5 WORLD BANK ECON. REV. 135, 138–39 (1991) (using Thailand as example for argument that property rights in land evolve as scarcity increases); Hannes H. Gissurarson, *Non-Exclusive Resources and Rights of Exclusion: Private Property Rights in Practice*, 13 JOURNAL DES ECONOMISTES ET DES ETUDES HUMAINES 119 (2003) (explaining emergence of private property as function of demand and political support); D. Bruce Johnsen, *The Formation and Protection of Property Rights Among the Southern Kwakiutl Indians*, 15 J. LEGAL STUD. 41 (1986) (arguing that Kwakiutl potlaching was designed to protect exclusive fishing rights); Ronald N. Johnson & Gary D. Libecap, *Contracting Problems and Regulation: The Case of the Fishery*, 72 AM. ECON. REV. 1005 (1982) (examining persistence of common property in Texas shrimp fishery); La Croix, *supra* note 19 (examining formation of property rights in gold in Australia during gold rush of 1850s); Janet T. Landa, *A Bioeconomics-Public Choice Theory of Property Rights: Sago Palms as Private Property among the Melanau of Sarawak* (Sept. 13, 2004) (unpublished manuscript, on file with the *New York University Law Review*) (offering theory of property rights in sago palms based on bioeconomics-public choice theory); Clarisa Long, *Information Costs in Patent and Copyright*, 90 VA. L. REV. 465 (2004) (examining copyright and patent law through lens of information costs); Merrill & Smith, *supra* note 27 (arguing that there are limited number of forms of property rights because standardization reduces measurement costs); Svetozar Pejovich, *Towards an Economic Theory of the Creation and Specification of Property Rights*, 30 REV. SOC. ECON. 309 (1972) (offering theory similar to Demsetz's, although referring more explicitly to behavior of state); Leonid Polishchuk & Andrei Savvateev, *Spontaneous (Non)emergence of Property Rights*, 12 ECON. TRANSITION 103 (2004) (arguing that secure property rights have not developed in Russia because of inadequate support from below, particularly lack of support from wealthy owners); Andrzej Rapaczynski, *The Roles of the State and the Market in Establishing Property Rights*, 10 J. ECON. PERSP. 87 (1996) (arguing that property rights emerge in response to market demand); Kal Raustiala & David G. Victor, *The Regime Complex for Plant Genetic Resources*, 58 INT'L ORG. 277 (2004) (offering Demsetzian account of property rights formation); Rose, *supra* note 27 (offering evolutionary account of environmental law); Henry E. Smith, *The Language of Property: Form, Context, and Audience*, 55 STAN. L. REV. 1105 (2003) (analogizing property law to language and arguing that both reflect concern with reducing information processing costs); Robert Sugden, *Spontaneous Order*, 3 J. ECON. PERSP. 85 (1989) (suggesting that property may arise spontaneously); Symposium, *The Evolution of Property Rights*, 31 J. LEGAL STUD. S331 (2002) (collecting papers from conference at Northwestern University School of Law reconsidering Demsetz's hypothesis about evolution of property rights); John Umbeck, *Might Makes Rights: A Theory of the Foundation and Initial Distribution of Property Rights*, 19 ECON. INQUIRY 38 (1981) (offering economic theory of formation of property rights constrained by violence).

For overviews of the scholarship on the emergence of property rights, see EGGERTSSON, *supra* note 9, at 247–80 (describing emergence of property rights in both “naive” and interest group models); EIRIK G. FURUBOTN & RUDOLF RICHTER, INSTITUTIONS AND ECONOMIC THEORY: THE CONTRIBUTION OF THE NEW INSTITUTIONAL ECONOMICS 104–20 (1997) (analyzing evolution of property rights scholarship); SENED, *supra* note 1, at 33–50 (discussing failure of neo-classical theories of origin of property rights to incorporate political aspects of market interactions, to recognize distinction between performance and structure of economy, and

FROM FUR TO FISH:  
RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
**Draft: Do not Cite or Quote w/o Author's Permission**

This Article takes the opposite starting point, arguing that understanding why private property does or does not develop requires focusing first on the collective-choice rules for establishing private property and then turning to underlying economic and social forces. I begin this Part by identifying a framework for thinking about the influence of political institutions on the timing of the introduction of private property. Then I examine two categories of hypotheses about the evolution of property rights: hypotheses that focus on the economic and physical attributes of resources, and hypotheses concerned with the characteristics of resource users.<sup>32</sup> In discussing the various hypotheses, I reframe them to reflect the impact of the distinctive collective-choice rules in the political arena on property rights formation.

A. *Political Institutions*

Political institutions influence the timing of the development of property rights because they affect the costs of decisionmaking. Although not immune to economic and social forces, political institutions nonetheless tend to become stable over time, especially if there are significant constitutional or other impediments to changing them.<sup>33</sup>

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to consider strategic aspects of interaction among agents); Dean Lueck & Thomas J. Miceli, *Property Rights and Property Law*, in HANDBOOK OF LAW AND ECONOMICS (A. Mitchell Polinsky & Steven Shavell eds.) (forthcoming) (manuscript at 21–25), at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=578323](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=578323) (last visited Jan. 1, 2005) (examining scholarship about determinants of evolution of property rights); Merges, *supra* note 10, at 1867–72 (discussing scholarship about evolution of property rights since Demsetz).

<sup>32</sup> The separation of hypotheses about the attributes of resources from hypotheses about the characteristics of resource users reflects William Buzbee's criticism of the tragedy of the commons literature for focusing solely "on the underlying relationship between the resource and those who utilize the resource." Buzbee, *supra* note 27, at 29.

<sup>33</sup> See Ostrom, *supra* note 10, at 50–54 (distinguishing and ranking three categories of decisionmaking rules based on difficulty of changing them).

Although the impact of political institutions on the formation of private property is not well-developed, there are many references to institutions in the evolution of property rights scholarship. See ALSTON ET AL., *supra* note 2, at 19 (discussing impact of "multiple, competing government agencies" on supply of property rights); WILLIAM A. FISCHER, *REGULATORY TAKINGS: LAW, ECONOMICS, AND POLITICS* 218–52 (1995) (discussing paralysis in land use development in California in 1970s); KANTOR, *supra* note 10, at 14–16, 38–112, 128–43 (underscoring significance of voting rules for probability of property rights formation in discussing referenda requiring majority approval to adopt livestock enclosure in postbellum Georgia); LIBECAP, *supra* note 10, at 108–14 (considering implications of voting rules established by governments for extent of oil field unitization by private firms); Alston & Spiller, *supra* note 2, at 86–89, 99–102 (emphasizing importance of composition of congressional committees for changes in property rights of Cherokees in nineteenth century); Alston et al.,

FROM FUR TO FISH:  
 RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
 80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
**Draft: Do not Cite or Quote w/o Author's Permission**

In analyzing the importance of the political institutions through which private property typically is established, it is useful to keep in mind three archetypal decisionmaking rules. The first, analogous to the prevailing marketplace rule, requires the unanimous agreement of the parties affected before a shift in property rights regimes may proceed. This rule typically will generate very high decisionmaking costs when there are many potentially affected parties, because a requirement of unanimity maximizes the number of actors who can bargain strategically to obtain a larger share of the gains associated with shifting to private property.<sup>34</sup> The second is a

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*supra* note 2, at 33 (briefly referring to “institutional features of representative governments” that may delay changes in property rights and discussing example of U.S. congressional committees); Barry C. Field, *The Evolution of Property Rights*, 42 *KYKLOS* 319, 335–40 (1989) (discussing significance of political institutions for property rights arrangements without addressing significance of voting rules); Michael A. Heller, *The Boundaries of Private Property*, 108 *YALE L.J.* 1163, 1186–87 (1999) (arguing that “empowering too many jurisdictional bodies . . . can create a tragedy of the anticommons” that blocks change); Heller, *supra* note 20, at 679 n.259 (noting that, in land use, “permitting processes with multiple layers of state and local agency approvals could create a ‘planning anticommons’” (citing WILLIAM A. FISCHER, *THE ECONOMICS OF ZONING LAWS: A PROPERTY RIGHTS APPROACH TO AMERICAN LAND USE CONTROLS* 224–26 (1985))); Merges, *supra* note 10, at 1868 (“The translation of changed conditions into property rights thus takes place only through the mediation of political institutions.”).

The importance of collective-choice rules is better recognized in environmental law scholarship than in the origins of property rights scholarship. For example, building on Buchanan and Tullock’s work, Jonathan Wiener argues that the voluntary assent, or unanimity, voting rule required to adopt international environmental regulation influences both what instruments should be used internationally and the actual content of global regulation. See generally Jonathan Baert Wiener, *Global Environmental Regulation: Instrument Choice in Legal Context*, 108 *YALE L.J.* 677 (1999); Jonathan Baert Wiener, *On the Political Economy of Global Environmental Regulation*, 87 *GEO. L.J.* 749 (1999).

Without expressly invoking the concept of decisionmaking rules, other scholars have suggested that the fragmented process through which U.S. environmental policy is established affects what instruments should be used to address concerns such as air pollution. Richard B. Stewart, *Madison’s Nightmare*, 57 *U. CHI. L. REV.* 335, 353–54 (1990). For a discussion of the role that fragmented institutions may play in delaying domestic environmental policy reform, see generally Buzbee, *supra* note 27 (noting that fragmented legislative and regulatory institutions contribute to neglect of environmental harms, as fragmentation reduces incentive for regulators to address them and creates uncertainty about where to turn among interest groups demanding regulation); Daniel C. Esty, *Next Generation Environmental Law: A Response to Richard Stewart*, 29 *CAP. U. L. REV.* 183, 192 (2001) (briefly noting that environmental regulatory reform has been delayed in U.S. because “political system” has “structural bias . . . in favor of the status quo”).

<sup>34</sup> See Heller, *supra* note 20, at 639 (noting one party’s ability to block change when unanimity is required); *id.* at 627, 635 (describing “paradigm of an anticommons” in which multiple owners whose unanimous agreement is required to use Moscow storefront “are a wide variety of state and quasi-state organizations”). Heller refers to other examples in which the multiple owners whose consent is required to rearrange property rights under the market rule of



FROM FUR TO FISH:  
RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
**Draft: Do not Cite or Quote w/o Author's Permission**

majoritarian decisionmaking rule. It could require either a simple or a qualified majority. Decisionmaking costs likely will decline the more the rule approximates simple majoritarianism, because fewer actors have opportunities to bargain strategically for a bigger share of the benefits of private property. The third decisionmaking rule is a unitary rule under which a single actor decides. While decisionmaking costs likely will be lowest under this rule, concentrating authority in a single actor may lead to less efficient decisions unless that actor is exceptionally benevolent and well-informed.<sup>35</sup>

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unanimity seem to be private actors. *See id.* at 679 n.259 (discussing intellectual property); *id.* at 684–85 (discussing urban redevelopment in Kobe, Japan).

<sup>35</sup> JAMES M. BUCHANAN & GORDON TULLOCK, *THE CALCULUS OF CONSENT: LOGICAL FOUNDATIONS OF CONSTITUTIONAL DEMOCRACY* 63–69 (1962); *see also* HENRY HANSMANN, *THE OWNERSHIP OF ENTERPRISE* 39–44 (1996) (discussing costs of collective decisionmaking); ELINOR OSTROM, *SELF-GOVERNANCE AND FOREST RESOURCES* 4 (Ctr. for Int'l Forestry Research, Occasional Paper No. 20, 1999) (identifying four collective-choice rules and arguing that applicable rule affects “whether an institutional change . . . will occur”); Michael J. Trebilcock, *Communal Property Rights: The Papua New Guinean Experience*, 34 U. TORONTO L. J. 377, 406–10 (1984) (discussing advantages and disadvantages of various decisionmaking rules).

In their simplest form, decisionmaking costs include the costs of gathering information about possible changes in property rights and deliberating about these changes. A more diffuse decisionmaking process should impose greater informational and deliberation costs because of the greater number of actors whose information needs must be satisfied and the time that multiple actors may spend considering an issue. More insidiously, decisionmaking costs also include the costs arising from the strategic behavior to which different collective-choice processes give rise. Decisionmaking processes involving multiple decisionmaking bodies likely provide greater opportunities for individual parties to delay changes in property rights by providing institutional structures for revisiting decisions. In addition, because more diffuse processes offer greater opportunities for blocking change, they may enhance the ability of opponents of change to extract side payments. The strategic costs engendered by revisiting decisions or extracting side payments also could be considered the consequence of the costs of gathering information, as these costs might be characterized as a byproduct of asymmetric information. For discussions of decisionmaking costs, *see, e.g.*, BUCHANAN & TULLOCK, *supra*, at 68–69 (discussing decisionmaking costs under varying circumstances); HANSMANN, *supra*, at 41–42 (describing costly inefficiencies that arise from collective-choice process); *see also* PETER S. MENELL & RICHARD B. STEWART, *ENVIRONMENTAL LAW AND POLICY* 61–62 (1994) (discussing opportunism as form of transaction cost).

The costs of reaching a decision should be distinguished from the costs resulting from an inefficient decision. To distinguish the two forms of costs, consider the example of a decision on the total allowable amount of fish that can be caught in a particular geographic area. The process of reaching the decision may be costly if every fisher is required to agree on the allowable level of the catch. Separately, however, the decision may give rise to what Buchanan and Tullock label external costs if, for example, the allowable catch is set too high and fishers are permitted to overfish and thereby to threaten the long-term health of the resource. These costs would be external to the fishers making the decision if the costs would be assumed by future generations of

FROM FUR TO FISH:  
 RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
 80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
**Draft: Do not Cite or Quote w/o Author's Permission**

Demsetzian accounts of the emergence of private property implicitly assume that the rearrangement of property rights occurs under the first decisionmaking rule, which requires the unanimous agreement of the private parties that would be affected by the change. This presumption reflects the decentralized, bottom-up orientation of these accounts, in which property rights are created through private interactions, without the intervention of a third party with a monopoly on the use of force. In bottom-up accounts, creating private property is a voluntary exercise analogous to a market transaction and therefore similarly susceptible to individual holdouts.

In practice, however, the collective-choice rules for altering property rights rarely require unanimity among the affected parties. There are notable examples of tribal societies in which leaders were influenced in their allocation of resources more by prominent members of the community than by the community as a whole.<sup>36</sup> The rarity of a unanimity requirement is even more apparent in the contemporary administrative state, in which government often becomes involved in a policy area precisely because private parties were unable to reach an acceptable agreement on their own. When an administrative agency or legislature makes a determination about whether to establish private property, affected parties may not be canvassed personally, let alone allowed to vote on the final decision.<sup>37</sup>

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fishers. BUCHANAN & TULLOCK, *supra*, at 63–68; *see also* HANSMANN, *supra*, at 40 (drawing similar distinction between “the costs resulting from inefficient decisions” and “the costs of the decisionmaking process itself”).

<sup>36</sup> *See, e.g.*, CLARK C. GIBSON, POLITICIANS AND POACHERS: THE POLITICAL ECONOMY OF WILDLIFE POLICY IN AFRICA 150–51 (1999) (explaining that before colonization, Zambian chiefs, who were enmeshed in “a complex web of patron-client relationships . . . allocated land for settlement and farming, declared open and closed seasons for fishing and hunting, and determined which species could be killed and by whom”); *see also* T.W. BENNETT, HUMAN RIGHTS AND AFRICAN CUSTOMARY LAW UNDER THE SOUTH AFRICAN CONSTITUTION 133–34 (1995) (describing power under customary law of leaders and wardheads to allot land and regulate access to natural resources). *But see* Christopher Boehm, *Egalitarian Behavior and Reverse Dominance Hierarchy*, 34 CURRENT ANTHROPOLOGY 227, 236 (1993) (arguing that “as of 40,000 years ago . . . it is very likely that all human societies practiced egalitarian behavior”); Trebilcock, *supra* note 35, at 406 (indicating that custom requires unanimity for land dealings in Papua New Guinea).

<sup>37</sup> There are exceptions, however. Referenda have been held in Canadian fisheries and at least one U.S. fishery (Gulf of Mexico red snapper) about whether to introduce tradable rights. *See* S.E. REG’L OFFICE, NAT’L MARINE FISHERIES SERV., INITIAL REFERENDUM FOR THE GULF OF MEXICO RED SNAPPER INDIVIDUAL FISHING QUOTA PROGRAM (IFQ) APPROVED 1 (Southeast Fishery Bulletin No. NR04-012, 2004) (announcing results of first of two referenda required to establish individual fishing quotas for Gulf of Mexico red snapper), *available at*

FROM FUR TO FISH:  
RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
**Draft: Do not Cite or Quote w/o Author's Permission**

Contemporary collective-choice processes for establishing private property vary widely. A process might be concentrated, with decisionmaking delegated to a single government actor or a hierarchically organized government agency. Alternatively, private property might be established through a collective decisionmaking body—such as a committee, a legislature, or a regulatory agency—that operates by a majority or qualified-majority voting rule. A third possibility is a combination of institutions and their attendant decisionmaking rules. When multiple institutions are involved, it will be especially difficult to characterize the decisionmaking rule collectively generated by them.

For analytical clarity, the collective-choice processes for establishing

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<http://sero.NMFS.noaa.gov/pubann/pa04/pdfs/nr04-012.pdf>; *infra* note 202 (describing origins of unique statutory requirement for referenda to introduce individual quotas in Gulf of Mexico red snapper fishery). Moreover, referenda prior to the implementation of individual transferable quotas may become a more general statutory requirement in the U.S. if the primary federal fisheries statute, the Magnuson-Stevens Act, is amended along the lines suggested recently by the Bush Administration, several House members and Senators, the Pew Commission, and the U.S. Commission on Ocean Policy. See Fishery Conservation and Management Amendments Act of 2004, S. 2066, 108th Cong. § 11(d)(6) (2004); Fishing Quota Standards Act of 2003, H.R. 2621, 108th Cong. § 2(d)(4) (2003); Fishing Quota Act of 2003, S. 1106, 108th Cong. § 2(d)(6) (2003); Press Release, U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Bush Administration Recommends Strengthening of Magnuson-Stevens Act (June 27, 2003), *available at* <http://www.publicaffairs.noaa.gov/releases2003/jun03/noaa03081.html> (including proposed reauthorization bill); U.S. COMM'N ON OCEAN POL'Y, PRELIMINARY REPORT OF THE U.S. COMMISSION ON OCEAN POLICY: GOVERNOR'S DRAFT 235 (2004), *available at* <http://www.oceancommission.gov>; PEW OCEANS COMM'N, AMERICA'S LIVING OCEANS: CHARTING A COURSE FOR SEA CHANGE 113–14 (2003), *available at* [http://www.pewoceans.org/oceans/oceans\\_report.asp](http://www.pewoceans.org/oceans/oceans_report.asp). For examples of the use of referenda or other mechanisms of public consultation to shift property rights in resources other than fisheries, see KANTOR, *supra* note 10, at 14–16, 38–112, 128–43 (noting that referenda were required to close open range in postbellum Georgia, except where livestock enclosure was imposed directly by legislature); Epstein, *supra* note 2, at S538 (noting that, for Chicago neighborhood to shift to residential parking permits, “at least 65 percent of the residents” must sign petition, among other requirements).

It should be noted that the full name of the Magnuson-Stevens Act is the Magnuson-Stevens Fishery Conservation and Management Act. Moreover, the statute has not always had this name. When it first was enacted in 1976, the statute was called the Fishery Conservation and Management Act. Subsequently it was renamed the Magnuson Fishery Conservation and Management Act, in honor of Senator Warren Magnuson. The statute assumed its current name in 1996, in a tribute to the Senator Ted Stevens. See JOSH EAGLE ET AL., TAKING STOCK OF THE REGIONAL FISHERY MANAGEMENT COUNCILS iv (discussing history of name of Magnuson-Stevens Act), *available at* [http://fisheries.stanford.edu/Stanford\\_Council\\_Report.pdf](http://fisheries.stanford.edu/Stanford_Council_Report.pdf) (2003). For the sake of clarity, I refer to the statute as the Magnuson-Stevens Act throughout this Article, even when discussing the statute before 1996.

FROM FUR TO FISH:  
 RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
 80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
**Draft: Do not Cite or Quote w/o Author's Permission**

private property might be envisioned as falling along a spectrum according to the extent to which they either concentrate ultimate decisionmaking in a single individual or a hierarchically organized agency, or distribute decisionmaking among multiple decisionmaking bodies, individuals, or agencies. The processes that fall closer to the concentrated end of the spectrum presumably would generate lower decisionmaking costs than the processes closer to the dispersed end. In turn, processes generating lower decisionmaking costs should be expected to introduce private property rights faster, assuming the level and distribution of demand for privatization are constant. Conversely, processes giving rise to higher decisionmaking costs should be expected to switch more slowly to private property, assuming once again that the level and distribution of demand are constant.<sup>38</sup>

The primary reason why diffuse processes involving multiple decisionmaking bodies give rise to higher decisionmaking costs is that the multiple bodies tend to have different preferences on an issue. If, however, the various bodies share the same preferences, then the additional decisionmaking costs generated by multiple bodies will be minimal, although not nonexistent. Simply requiring the approval of the multiple bodies to proceed, even if they agree with each other, nonetheless adds to the costs of implementing private property, for example, by increasing deliberation costs.<sup>39</sup>

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<sup>38</sup> See GEORGE TSEBELIS, VETO PLAYERS: HOW POLITICAL INSTITUTIONS WORK 19 (2002) (arguing that greater “the number of veto players” and “the distance among” them, “the more difficult it is to change the status quo”); Heller, *supra* note 20, at 655 (recognizing that heterogeneity of interests, as well as large numbers of owners, delays change in market settings where unanimity is required). See generally JOHN D. HUBER & CHARLES R. SHIPAN, DELIBERATE DISCRETION? THE INSTITUTIONAL FOUNDATIONS OF BUREAUCRATIC AUTONOMY (2002) (discussing impact of structure of decisionmaking institutions); KENNETH A. SHEPSLE & MARK S. BONCHEK, ANALYZING POLITICS: RATIONALITY, BEHAVIOR AND INSTITUTIONS 345–79 (1997) (same); Mathew D. McCubbins et al., *Administrative Procedures as Instruments of Political Control*, 3 J.L. ECON. & ORG. 243 (1987) (same); Terry M. Moe & Michael Caldwell, *The Institutional Foundations of Democratic Government: A Comparison of Presidential and Parliamentary Systems*, 150 J. INST. THEOR. ECON. 171 (1994) (same, in comparison to parliamentary system).

<sup>39</sup> See TSEBELIS, *supra* note 38, at 29 (suggesting that, even if veto players overlapped in their preferences, addition of another veto player might delay change if “transaction costs in the interaction of different veto players” are considered). Decisionmaking bodies likely will exhibit different preferences if the institutions are assigned different mandates, selected by and accountable to different constituencies, and/or comprised of members who are elected or appointed in different ways, or for different lengths of time. See, e.g., ALSTON ET AL., *supra* note 2, at 77 (suggesting that state land agency in state of Pará is more responsive to local political

FROM FUR TO FISH:  
RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
**Draft: Do not Cite or Quote w/o Author's Permission**

Below I suggest that one of the reasons that tradable rights have been slow to develop in U.S. coastal fisheries in federal waters is that the political institutions through which these rights typically must be created are highly inclusive, resulting in multiple veto points that increase the cost of decisionmaking.<sup>40</sup> To illustrate the role that these veto points have played in delaying the pace of change, I discuss an instance in which Congress, principally at the instigation of a small number of senators from coastal states, blocked the regional fishery management councils and the federal fisheries management agency from introducing new individual tradable fishing rights for several years.<sup>41</sup> This congressional action illustrates the potential for institutions with different mandates, constituencies, and decisionmaking processes to block the introduction of property rights by taking different positions on the same issue.<sup>42</sup>

*B. Attributes of Resources*

Instead of focusing at the outset on the political institutions through which private property must be created, Demsetzian accounts of the evolution of individual rights start with underlying economic and social factors. In particular, standard Demsetzian accounts suggest that the probability that private property will be introduced is influenced heavily by

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pressures than federal agency); Todd J. Zywicki, *Senators and Special Interests: A Public Choice Analysis of the Seventeenth Amendment*, 73 OR. L. REV. 1007, 1009–12 (1994) (arguing that shift from state legislatures selecting senators to direct election opened door to increased special interest legislation).

<sup>40</sup> See *infra* Part II.C.1.

<sup>41</sup> See *infra* notes 180–193, 202–207 and accompanying text for a discussion of the moratorium to prevent councils from recommending, and NMFS from approving, individual transferable quotas and the repeal in the same legislative context of a plan to introduce individual transferable quotas in Gulf of Mexico red snapper fishery.

<sup>42</sup> See *supra* note 39 for sources discussing when decisionmaking bodies might be expected to exhibit diverse preferences.

The case study in Part II *infra* underscores the role of political institutions in property rights formation and emphasizes how a highly fragmented political decisionmaking process such as the one regulating U.S. federal fisheries may delay change. However, formal testing of the significance of variance in political institutions for the timing of the introduction of private property must await a future study with more institutional variance, where it is also possible to hold constant other variables, such as changes in prices, measurement and monitoring costs, the degree of utilization and group size, and heterogeneity. See generally Thomas H. Hammond & Christopher K. Butler, *Some Complex Answers to the Simple Question “Do Institutions Matter?”: Policy Choice and Policy Change in Presidential and Parliamentary Systems*, 15 J. THEORETICAL POL. 145 (2003) (discussing difficulty of conclusively establishing that institutions matter).

FROM FUR TO FISH:  
 RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
 80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
**Draft: Do not Cite or Quote w/o Author's Permission**

several factors loosely related to the characteristics of the resource itself. Among the attributes commonly emphasized are the market value of the resource, the difficulty of measuring and monitoring it, and the degree of utilization of the resource. Recognizing the significance of the political institutions through which private property typically is created requires reframing the standard treatments of these variables to reflect the impact of the decisionmaking rules in the political process.

*1. Changes in Prices*

One of the most consistent themes in accounts of the origins of private property is that property rights evolve in response to changes in the price of a resource.<sup>43</sup> In particular, it is often suggested that an increase in the price of a resource due to greater demand from expanding markets or population growth promotes the introduction of private property in that resource.<sup>44</sup> According to this standard hypothesis, when the resource is worth more, individuals stand to gain more if the resource is securely in their hands.

The conventional story that price increases prompt the introduction of private property rights reflects the idea that property rights respond to shifts in the rents, or profits, expected from private property. Rents are “any

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<sup>43</sup> *E.g.*, EGGERTSSON, *supra* note 9, at 259 (“Generally, it has been assumed in the property rights literature that an increase in the value of a resource will foster exclusive rights.”); LIBECAP, *supra* note 10, at 17 (“An increase in asset values due to changes in relative prices typically will lead to greater competition for control and political pressure on politicians from various claimants for a more favorable definition of property rights.”); Anderson & Hill, *supra* note 31, at 167 (“Any change in the price of a well defined and enforced bundle of rights changes the return on resources devoted to property rights questions. ‘The higher market value attaching to goods with strong ownership rights spurs individuals to seek laws that would strengthen private property rights.’”) (citing ARMEN ALCHIAN & WILLIAM ALLEN, UNIVERSITY ECONOMICS 141 (3d ed. 1972)); Demsetz, *Toward*, *supra* note 1, at 350 (“Increased internalization, in the main, results from changes in economic values.”); *id.* (“[G]iven a community’s tastes . . . the emergence of new private or state-owned property rights will be in response to changes in technology and relative prices.”); Feeny, *supra* note 2, at 273 (“[A]n appreciation in the relative price of a factor will induce an increase in the demand for an institution to define property rights in that factor. It will also increase the benefits to be derived from the utilization of that system of property rights.”).

<sup>44</sup> For examples of references to expanding markets as the trigger, see ALSTON ET AL., *supra* note 2, at 35 (discussing increasing coffee exports); Feeny, *supra* note 2, at 283 (discussing growing “commercialization of the Thai economy” and expanded ties with “regional and world markets”); La Croix & Roumasset, *supra* note 19, at 851 (discussing how “new market opportunities” for sugar partly induced evolution of property rights in land in Hawaii); *see also* Feeny, *supra* note 2, at 296 (referencing population growth as trigger).

FROM FUR TO FISH:  
RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
**Draft: Do not Cite or Quote w/o Author's Permission**

price over cost.<sup>45</sup> Costs include the cost of harvesting the resource as well as the cost of securing the resource under the applicable property rights regime. Under the standard story, the cost side of the equation is held constant, so a rise in price increases expected rents. This increase in rents in turn is expected to stimulate demand for more individual rights.<sup>46</sup>

However, the standard story about prices seems naive<sup>47</sup> once it is recognized that private property typically is formed through political—rather than market—ordering. The traditional theory's focus on the overall level of anticipated rents as a driver of change neglects the significance of the distribution of the expected rents among the politically influential parties that are likely to participate in the decisionmaking process. Yet the political process is surely as sensitive to the distribution of expected rents among influential groups as it is to aggregate levels of expected rents. Imagine a new property rights arrangement that promises sizeable aggregate gains compared with the status quo. The new arrangement nonetheless might not be introduced if those gains would be spread thinly among numerous persons who individually would need to incur large costs to obtain the rearrangement. Conversely, an institutional change that promises minimal aggregate gains or perhaps even an overall loss to a society still might take place if the change would benefit a small group of politically influential persons. If each of the members of the small group stands to make large gains, the group members might lobby for the change even though it would not generate sizeable gains for society as a whole. Despite its importance as a determinant of change, however, the effect of the distribution of expected rents among influential groups has been recognized only slowly in the scholarship about the origins of property rights formation.<sup>48</sup>

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<sup>45</sup> Fred S. McChesney, *Rent From Regulation*, in 3 THE NEW PALGRAVE DICTIONARY OF ECONOMICS AND THE LAW 310, 311 (Peter Newman ed., 1998) (“In textbook-perfect competition, price equals marginal cost, so any price over cost by definition constitutes a rent.”).

<sup>46</sup> For a clear exposition of the idea that it is the greater magnitude of expected rents under private property than other regimes that promote changes in property rights, see ALSTON ET AL., *supra* note 2, at 84–86, 118 (explaining when titles will be warranted); *see also* Alston et al., *supra* note 2, at 32 (It is “potential rent . . . that drives the *demand* for property rights.”).

<sup>47</sup> In using the term “naive,” I am invoking Thráinn Eggertsson’s well-known description of the Demsetzian approach. *See* EGGERTSSON, *supra* note 9, at 250 (“Demsetz’s 1967 paper . . . is the classic reference for the naive theory of property rights, [which seeks] to explain the development of exclusive property rights without explicitly modeling social and political institutions.”).

<sup>48</sup> Still, of the gaps in the standard Demsetzian account discussed in this Article, the most widely recognized is probably the lack of attention to the distributional consequences of property

FROM FUR TO FISH:  
 RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
 80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
**Draft: Do not Cite or Quote w/o Author's Permission**

Consistent with the conventional story, tradable rights have been

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rights formation. Economist Gary Libecap, in particular, emphasizes the significance of the distribution of rents in property rights formation for the likelihood that change will take place. *See, e.g.*, LIBECAP, *supra* note 10, at 4–5, 11, 19, (arguing that positions of bargaining parties are molded by private expected gains); Libecap, *supra* note 10, at 7 (“[T]he heart of the contracting problem is devising politically-acceptable allocation mechanisms to assign the gains from institutional change.”); *see also* ALSTON ET AL., *supra* note 2, at 4 (arguing that “allocation and enforcement” of property rights “involve distributional concerns”); ENSMINGER, *supra* note 10, at 126 (noting distributional consequences of changes in property rights); FIRMIN-SELLERS, *supra* note 2, at 4, 33 (emphasizing significance of distributional conflict for creation of property rights in examining transformation of property rights in Ghana); DOUGLASS C. NORTH, INSTITUTIONS, INSTITUTIONAL CHANGE AND ECONOMIC PERFORMANCE 51–52 (1990) (referring to role of “powerful constituents” in influencing form of property rights); Alston & Spiller, *supra* note 2, at 99–101 (discussing interest groups implicated in evolution of property rights in Cherokee Outlet); Alston et al., *supra* note 2, at 32 (noting significance of distribution of gains and losses for whether property rights change); Banner, *supra* note 2, at S368–69 (discussing role of oligarchies in property transitions); Epstein, *supra* note 2, at S516–17 (emphasizing role of interest groups in political systems for controlling parking); Feeny, *supra* note 2, at 274 (offering model for evolution of property rights that emphasizes that whether they change depends in part on benefits that “elite decisionmakers of government” may reap); Gissurason, *supra* note 31, at 119–20 (referring to change in traditional distribution of rights in discussing evolution of property rights in Danish eel); Krier, *supra* note 5, at 332–46 (discussing distributional issues); La Croix, *supra* note 19, at 225 (referring to impact of interest groups on mining rules); La Croix & Roumasset, *supra* note 19, at 851 (relying on “rent-seeking as the engine of change”); Levmore, *Property's Uneasy Path*, *supra* note 2, at 184–86 (arguing that there are two possible stories for shifts toward or away from privatization of intellectual property rights, optimistic transaction cost story, and interest group story); Levmore, *Two Stories*, *supra* note 2, at S423–33 (applying same argument to more types of property); McChesney, *Government As Definer*, *supra* note 19, at 122 (explaining allotment as political policy that increased budgets of Bureau of Indian Affairs and served interests of well-organized non-Indian interest groups); McChesney, *Tragedy Exiting*, *supra* note 19, at 243 (explaining that political pressure can dictate inefficient allocation of property rights); Merges, *supra* note 10, at 1870–71 (referring to role of interest groups); Merrill, *supra* note 2, at 280–81 (discussing distributional considerations in explaining evolution of market mechanisms for regulating environmental resources); Wang, *supra* note 2, at 417 (arguing that there are two schools of thought about why property rights evolve, “the economic school and the distribution school”). *See generally* KANTOR, *supra* note 10 (discussing distributional issues associated with fence law reform in postbellum Georgia); Robert Higgs, *Legally Induced Technical Regress in the Washington Salmon Fishery*, in EMPIRICAL STUDIES IN INSTITUTIONAL CHANGE 247 (Lee J. Alston et al. eds., 1996) (discussing implications of different forms of fisheries regulation for different groups of fishers).

On the general significance of distributional issues in public policymaking, *see, for example*, SENED, *supra* note 1, at 47 (“The political game is played between unequal players, who worry more about distributional consequences and conflicting interests than they worry about social or any other kind of efficiency.”); CHARLES WOLF, JR., MARKETS OR GOVERNMENTS: CHOOSING BETWEEN IMPERFECT ALTERNATIVES 29 (1988) (“[M]ost public policy decisions are usually even more concerned with distributional issues (namely, *who* gets the benefits and *who* pays the costs) than with efficiency issues (namely, how *large* are the benefits and costs).”).



FROM FUR TO FISH:  
RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
**Draft: Do not Cite or Quote w/o Author's Permission**

introduced in a number of fisheries following a pattern of price increases that suggested that a switch to tradable rights would generate higher aggregate levels of rents.<sup>49</sup> However, the distribution of expected rents among politically influential parties has mattered at least as much as the aggregate level of expected rents for the timing of the introduction of property rights. In particular, debates about introducing individual fishing rights have been plagued by conflicts among groups of fishers and processors about how to allocate tradable rights when first implementing them.<sup>50</sup> In fisheries, tradable rights represent an interest in the rents that private property promises. Accordingly, conflicts about how to allocate tradable rights are instances of concerns among influential groups about the distribution of rents getting in the way of changes in property rights that promise higher aggregate levels of rents.

## 2. *Measurement and Monitoring Costs*

Another recurring theme in accounts of the origins of private property is the influence of measurement and monitoring costs on whether and when privatization takes place. There are two items that must be measured and monitored for property rights to have force: the contours of the resource that is the subject of private property, and the limits of the legal rights enjoyed by the various owners of the resource.<sup>51</sup> The costs of measuring and monitoring both of these items have been characterized as impediments to the creation of private property. Demsetz noted the cost of monitoring the underlying resource. In particular, he speculated that one of the reasons that private property rights did not develop in the animals of the American southwest was that these animals were difficult to monitor because they ranged widely.<sup>52</sup> More recently, others have suggested that the costs of

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<sup>49</sup> See *infra* Part II.C.2.a (noting some evidence consistent with hypothesis that price increases induce changes in property rights).

<sup>50</sup> See *infra* notes 204–209 and accompanying text.

<sup>51</sup> See Long, *supra* note 31, at 474–82 (identifying two main categories of information that observers need to process under “[t]he proprietarian relationship”).

<sup>52</sup> Demsetz, *Toward*, *supra* note 1, at 353; see also ENSMINGER, *supra* note 10, at 127 (noting that improved infrastructure may reduce cost of monitoring private property); Anderson & Hill, *supra* note 31, at 172, 175 (explaining how introduction of barbed wire in 1870s reduced cost of enclosing land and livestock and increased rights definition in these resources in American west); Gissurarson, *supra* note 31, at 122–23 (arguing that mountain pastures in Iceland were not divided into private property because of high “exclusion costs for individual plots”); Dean Lueck, *The Extermination and Conservation of the American Bison*, 31 J. LEGAL STUD. S609, S641–44, S646–50 (2002) (attributing near extinction of bison in nineteenth century partly to high cost of enclosing bison, which are nomadic).

FROM FUR TO FISH:  
 RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
 80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
**Draft: Do not Cite or Quote w/o Author's Permission**

measuring and monitoring idiosyncratic forms of legal rights have limited the number of categories of rights recognized in property law. According to the proponents of this view, larger numbers of categories would generate higher measurement costs for third parties since they would need to investigate rights more carefully if considerable individual tailoring were permitted.<sup>53</sup>

The argument that measurement and monitoring costs influence property rights is a variation on the notion that higher expected rents drive the creation of private property. Measurement and monitoring costs are simply one category of cost that affects the magnitude of expected rents. Holding constant the price of a resource, the standard measurement and monitoring cost story argues that private property has developed either because measurement and monitoring costs are sufficiently low given the price, or has not developed because the cost of delimiting individual rights is too high. Under this story, private property still might emerge in the future if a price increase makes further delimitation plausible even at current measurement costs, or if measurement costs fall, for example, due to technological change.<sup>54</sup>

Isolating measurement and monitoring costs from other costs relevant to determining expected rents emphasizes that the cost of acquiring information affects the shape of property rights. In effect, measurement and monitoring costs are a proxy for the difficulty of obtaining information about a resource and the legal rights surrounding it. As an example of the kind of information that private property may require, consider some of the information that is necessary to implement tradable rights in fish. Every year, information must be obtained about the affected population of fish to

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<sup>53</sup> See Merrill & Smith, *supra* note 27, at 8 (arguing that property rights “are restricted to a limited number of standardized forms” because “[s]tandardization of property rights reduces . . . measurement costs”); Smith, *supra* note 31, at 1108, 1114–15 (extending Merrill & Smith’s argument about measurement costs and suggesting that property and related law reflect concern with reducing cost of measurement, or information processing). See generally Henry Hansmann & Reinier Kraakman, *Property, Contract and Verification: The Numerus Clausus Problem and the Divisibility of Rights*, 31 J. LEGAL STUD. 373 (2002) (arguing that limited number of forms of property rights facilitates verifying ownership of rights); Long, *supra* note 31 (arguing that patent and copyright reflect information costs).

<sup>54</sup> See Merrill & Smith, *supra* note 27, at 40–42 (arguing that technological changes that lower information costs will reduce standardization); Smith, *supra* note 31, at 1155 (noting that “as assets increase in value we would expect an increase in complexity” of rights); *id.* at 1188 (“[R]ecently, certain formalism requirements (e.g., for negotiability) have been relaxed as communication has become cheaper.”).

FROM FUR TO FISH:  
RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
**Draft: Do not Cite or Quote w/o Author's Permission**

calculate the overall amount that can be harvested. Once that allowable catch has been allocated among fishers, information must be compiled regularly about the amount of fish they are harvesting individually and whether they hold sufficient individual quotas either from the initial allocation or subsequent purchases to cover their catch.<sup>55</sup>

However, the existing measurement and monitoring cost stories arguably are as politically naive<sup>56</sup> as the standard story that price increases promote privatization by increasing expected rents. Just as the standard story about prices ignores the distribution of the higher expected rents generated by the higher prices, so the measurement and monitoring cost stories neglect the distribution of the higher costs that might arise under private property. Instead, the measurement and monitoring cost stories suggest that the aggregate level of measurement and monitoring costs will determine the arrangement of property rights and neglect the significance of the distribution of those costs among the parties most likely to be influential in the political process. Imagine, as the standard stories predict, that private property necessitates higher measurement and monitoring costs. Private property still might be introduced if the interest groups that stand to benefit are sufficiently powerful to externalize all or a portion of these costs onto society at large and thereby avoid incurring the higher measurement and monitoring costs.<sup>57</sup>

In analyzing why tradable rights have been slow to evolve in U.S. coastal fisheries, I note empirical evidence that tradable rights do, in fact, increase measurement and monitoring costs. I also suggest, however, that these costs may not have been an important obstacle to introducing tradable

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<sup>55</sup> See Yoram Barzel, *Measurement Cost and the Organization of Markets*, 25 J.L. & ECON. 27, 28 n.3 (1982) (“Measurement is the quantification of information.”); Smith, *supra* note 31, at 1140 (“[T]he owner’s claim to Blackacre involves production costs (the costs of erecting a fence and filing title documents) and processing costs (the costs of viewing and respecting the fence and searching and reading the title documents).”); see also Daniel C. Esty, *Environmental Protection in the Information Age*, 79 N.Y.U. L. REV. 115, 121 n.12 (2004) (citing leading scholarship on economic relevance of information).

<sup>56</sup> See *supra* note 47 (explaining reference to “naive”).

<sup>57</sup> For similar intuitions, see ENSMINGER, *supra* note 10, at 141–42 (noting that ability to externalize enforcement costs onto central state enabled Orma to adopt “more exclusive control of pastoral lands”); Banner, *supra* note 2, at S363 (speculating that fishermen might be able to externalize cost of “establishing and enforcing” property rights onto taxpayers).

Notably, Merrill and Smith recognize the possibility that measurement costs might be externalized onto third parties. Merrill & Smith, *supra* note 27, at 8. But they optimistically argue that courts and legislatures “reduce the costs to third parties of measuring the legal dimensions of property rights.” *Id.* at 9.

FROM FUR TO FISH:  
 RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
 80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
**Draft: Do not Cite or Quote w/o Author's Permission**

rights in recent decades because fishers have not been required consistently to shoulder the burden of these higher costs.<sup>58</sup> This experience in the fisheries context reinforces the need to revisit the hypothesis about the significance of aggregate levels of measurement and monitoring costs, given that the distribution of those costs may undercut their political salience, and accordingly their predictive strength, for the development of private property rights.

### 3. *Degree of Utilization*

Embedded within Demsetz's discussion of why the fur trade caused hunting territories to emerge is the notion that private property is most likely to develop in a resource that is being used actively for economic gain.<sup>59</sup> The idea that the degree of utilization of a resource influences the timing of the introduction of private property forms the basis of a sequential hypothesis about the implementation of private property that is most fully developed by economist Gary Libecap. He envisions roughly three stages in the utilization of a resource based on economic and biological factors: an early stage, an interim or "middling" stage, and a late stage. According to Libecap, resources are most likely to shift to private property late in the history of exploitation, second most likely to shift early in the history of exploitation, and least likely to shift in the interim or middling stage.<sup>60</sup>

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<sup>58</sup> See *infra* Part II.C.2.b.

<sup>59</sup> See Demsetz, *Toward*, *supra* note 1, at 351–52 (discussing situations before and after advent of fur trade).

<sup>60</sup> See LIBECAP, *supra* note 10, at 74, 81–82, 86, 98, 100, 107, 116 (explaining relationship between probability of property rights shifting and sequence of stages of resource use); Gary D. Libecap, *The Conditions for Successful Collective Action*, in LOCAL COMMONS AND GLOBAL INTERDEPENDENCE: HETEROGENEITY AND COOPERATION IN TWO DOMAINS 168–69, 188 (Robert O. Keohane & Elinor Ostrom eds., 1995) (same). *But cf.* LIBECAP, *supra* note 10, at 100, 107 (implying that private property is more likely to develop when resource development has matured, rather than when it is excessive); Gary D. Libecap & James L. Smith, *The Economic Evolution of Petroleum Property Rights in the United States*, 31 J. LEGAL STUD. S589, S595 (2002) (same).

It is important to emphasize that, for Libecap, exploitation (or utilization) is not a purely biological concept. Rather, a resource's utilization level is a function of economic as well as biological factors. See, e.g., Libecap, *supra*, at 161, 168 (suggesting that resource is "late" in history of exploitation "after conditions have become so severe regarding the state of the resource and the ability of the parties to obtain income from its use").

Other scholars also have offered sequential explanations of the evolution toward private property that relate the choice of management tool to different stages in the history of resource exploitation. E.g., ALSTON ET AL., *supra* note 2, at 81–114 (elaborating framework "for

FROM FUR TO FISH:  
RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
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The sequential hypothesis is another variation on the idea that expected rents drive the creation of private property. Under this hypothesis, the price of the resource implicitly is held constant, but the cost side of the equation varies depending on the level of the utilization of the resource. In particular, Libecap emphasizes that harvesting costs and the costs of organizing users to make the transition to private property will differ depending on the level of utilization.

Libecap suggests that private property might emerge early in the history of exploitation because the costs of shifting to tradable rights will be comparatively lower at the beginning. It may be easier to negotiate an initial distribution of rights early in the history of a fishery, for example, because there will be “no preexisting claims or historical catch differences that must be reconciled.”<sup>61</sup> Moreover, introducing private property earlier would save on harvesting costs later. The magnitude of the expected savings under private property compared with an alternative property rights arrangement would be uncertain, however, given the undeveloped state of the market for the resource.

Even though private property may emerge in the early stage, it is more likely to emerge in the late stage under Libecap’s hypothesis. In suggesting that resources are most likely to shift to tradable rights in the late stage, the hypothesis assumes that when resources are overutilized, harvesting costs will be considerably lower under private property as compared with communal or open-access arrangements. As Libecap explains, the aggregate gains from revisiting property rights might be “very large . . . if the fishery was so severely overfished that incomes or returns per unit of effort were very low.”<sup>62</sup> Moreover, the costs of bargaining a new rights arrangement are assumed to be lower after a resource is overexploited, on the basis that negotiations will involve a smaller number of more homogeneous resource users than when resource utilization was at its

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sequential development and the demand for titles”); Epstein, *supra* note 2, at S518–19 (sketching evolutionary account in which property rights change as intensity of use increases); Esty, *supra* note 55, at 193 (“The level of resource pressure determines when intervention is justified. But the level of resource pressure at which intervention is justified also depends on intervention costs, which are in part a function of information costs.”); Rose, *supra* note 27, at 14–29 (offering evolutionary account of choice of instrument for regulating environmental resources).

<sup>61</sup> LIBECAP, *supra* note 10, at 86.

<sup>62</sup> *Id.* at 86; *see also id.* at 116 (“[C]hanges in property rights generally will come late, when common pool losses and, hence, the gains from agreement are large enough to facilitate side payments and other political exchanges to build a consensus for the new institutions.”).

FROM FUR TO FISH:  
 RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
 80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
**Draft: Do not Cite or Quote w/o Author's Permission**

peak.<sup>63</sup>

The sequential hypothesis is notable because it takes into account the political process by which private property develops by first emphasizing the relevance of the costs of collective action for the probability of change, and then suggesting that these costs vary depending on the level of resource use. But like the hypotheses about prices and measurement and monitoring costs discussed above, Libecap's sequential hypothesis does not appreciate fully the implications of understanding property rights formation as a political process in which the key to success is overcoming the obstacles created by the prevailing decisionmaking rules.

Taking political factors into account, Libecap's hypothesis that resources will be more amenable to private property early in the history of exploitation than in the middling stage becomes questionable. As mentioned above, Libecap suggests that resources will be amenable to rights early on because there will be no preexisting claims to the resources at this stage of exploitation. But if there are no claims to a resource, it is unlikely that anyone will be sufficiently motivated to incur the costs of lobbying regulators or legislators for private property. Moreover, the costs of implementing private property in these circumstances could be high, since the absence of a cadre of existing users might make it more difficult to allocate ownership rights at the outset.

The prediction that private property is most likely to be introduced late in the history of exploitation is also suspect. To its credit, this prediction is consistent with the common intuition that institutions change in the face of crisis. But the costs of bargaining a new arrangement of rights might be very high late in the history of utilization, as there may be many entrenched interests with claims to a comparatively depleted resource. Moreover, introducing private property late in the history of exploitation may not generate significant savings in harvesting costs given the level of effort already applied to the resource.<sup>64</sup>

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<sup>63</sup> *Id.* at 74, 81–82.

<sup>64</sup> Contrary to Libecap, Alcock suggests that “IFQ [individual fishing quota] programs are more likely to benefit a broader group of stakeholders if they are implemented before stock conditions enter dire straights” but nonetheless argues (without systematic empirical evidence) that “[i]n the vast majority of cases, IFQs are adopted only after stocks have suffered serious declines and/or other regulatory options have failed.” Alcock, *supra* note 28, at 206; *see also* Ostrom, *supra* note 35, at 3 (suggesting that self-governing associations are most likely to emerge where “[t]he resource is not at a point of deterioration such that it is useless to organise or so underutilised that little advantage results from organising”).

FROM FUR TO FISH:  
RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
**Draft: Do not Cite or Quote w/o Author's Permission**

This suggests that, contrary to Libecap's hypothesis, the middling stage of utilization might be the optimal stage for introducing private property. The potential for economizing on harvesting costs likely will be tangible given the fact that there is a developed market for the resource. In addition, the costs of collective action might be lower than when the resource is overutilized because users will be competing for shares in a resource that remains reasonably healthy. The costs of collective action also might be cheaper than when a resource is underutilized, due to the existence of a defined set of users to whom rights could be assigned. Indeed, I discuss evidence below that most of the federal coastal fisheries that shifted to tradable rights between 1977 and 2002 were fully utilized, rather than overutilized or underutilized as Libecap's sequential hypothesis would predict.<sup>65</sup> This evidence further reinforces the need to consider the political dynamics of property rights formation in theorizing about when it is likely to take place.

*C. Characteristics of Resource Users*

The standard theories about the evolution of property rights have taken two approaches to interest groups of resource users. Some scholars neglect the role of interest groups in changes in property rights, implicitly assuming, as Demsetz did, that private property is formed through private ordering among individuals.<sup>66</sup> Others emphasize the contributions of interest groups, and thereby recognize a political dimension to the evolution of property rights.<sup>67</sup> But even these more political accounts of

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<sup>65</sup> See *infra* Part II.C.2.c.

<sup>66</sup> See Anderson & Hill, *supra* note 31, at 164 (offering economic theory of origins of property rights emphasizing "variables such as demand, factor endowments, and technology"); Smith, *supra* note 31, at 1108, 1114–15 (analogizing property law to language and arguing that property law is structured to reduce information processing costs). See generally Rose, *supra* note 27 (offering evolutionary account of choice of instrument for regulating environmental resources that focuses substantially on cost-minimization and pressure on resource).

In arguing that changes in property rights are prompted by forces within society, Demsetz noted the role of individuals in bringing new property rights arrangements into being. Demsetz, *Toward*, *supra* note 1, at 350 ("[T]he emergence of new property rights takes place in response to the desires of the interacting persons for adjustment to new benefit-cost possibilities."); *id.* at 354–57 (noting that small numbers facilitate internalizing externalities). However, Demsetz did not explicitly incorporate interest groups—or the distributional conflicts to which they give rise—into his hypothesis about why property rights evolve toward private property.

<sup>67</sup> Indeed, there is now a comparatively extensive scholarship discussing the role of interest groups in property rights formation. See, e.g., ENSMINGER, *supra* note 10, at 134–41 (discussing different forms of property rights preferred by various Orma groups); Levmore, *Two Stories*,

FROM FUR TO FISH:  
 RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
 80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
**Draft: Do not Cite or Quote w/o Author's Permission**

the evolution of property rights often rely on simplified conceptions of the political process that largely equate it with private ordering requiring the agreement of the affected groups in order to proceed.

Indeed, reflecting their underlying similarity, both the scholarship that takes interest groups into account and the scholarship that neglects them often focus on two characteristics of user groups: the size of the groups, and their degree of homogeneity. In turn, large group size and heterogeneity routinely are identified as obstacles to the establishment of private property, on the ground that they complicate the key step of allocating private rights when they are first introduced.<sup>68</sup>

### 1. *Heterogeneity*

Heterogeneity among the groups and individuals laying claim to a resource often is identified as an obstacle to creating private property.<sup>69</sup>

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*supra* note 2, at S425–33 (arguing there is interest group explanation, as well as efficiency explanation, for changes in property rights). See generally KANTOR, *supra* note 10 (discussing groups implicated in livestock enclosure in postbellum Georgia); LIBECAP, *supra* note 10 (addressing distributional implications in analyzing property rights formation in natural resources). See also *supra* note 48 (citing additional sources addressing distributional issues).

<sup>68</sup> See *infra* note 69 (citing sources discussing heterogeneity); *infra* note 76 (citing sources discussing group size).

For discussions of the significance of the initial allocation of rights, see LEIGH RAYMOND, PRIVATE RIGHTS IN PUBLIC RESOURCES: EQUITY AND PROPERTY ALLOCATION IN MARKET-BASED ENVIRONMENTAL POLICY 5 (2003) (“[T]he initial allocation . . . generally makes or breaks the political adoption of any licensed property policy.”); Tom Tietenberg, *The Tradable Permits Approach to Protecting the Commons: What Have We Learned?*, in THE DRAMA OF THE COMMONS 197, 207–09 (Elinor Ostrom et al. eds., 2002) (“The initial allocation of entitlements is perhaps the most controversial aspect of a tradable permits system.”); see also Paul L. Joskow & Richard Schmalensee, *The Political Economy of Market-Based Environmental Policy: The U.S. Acid Rain Program*, 41 J.L. & ECON. 37 (1998) (analyzing initial allocation of sulfur dioxide allowances in U.S. acid rain program).

<sup>69</sup> See, e.g., LIBECAP, *supra* note 10, at 22–23, 31, 50, 68–69, 117, 119–20 (discussing disadvantages of heterogeneity and advantages of homogeneity); Lee J. Alston et al., *Regulating Natural Resources: The Evolution of Perverse Property Rights*, in EMPIRICAL STUDIES IN INSTITUTIONAL CHANGE 244, 245 (Lee J. Alston et al. eds., 1996) (discussing disadvantages of heterogeneity); Steven F. Edwards, *Rent-Seeking and Property Rights Formation in the U.S. Atlantic Sea Scallop Fishery*, 16 MARINE RESOURCE ECON. 263, 273 (2002) [hereinafter Edwards, *Rent-Seeking*] (characterizing heterogeneity as obstacle); Elinor Ostrom, *How Types of Goods and Property Rights Jointly Affect Collective Action*, 15 J. THEORETICAL POL. 239, 261 (2003) (noting that, while attributes conducive to success of individual property rights are not “as well established as the attributes” conducive to communal property regimes, “heterogeneity of participants also affect[s] the costs of maintaining withdrawal-rights systems” such as individual transferable quotas (citing Steven F. Edwards, *Ownership of Renewable Ocean Resources*, 9 MARINE RESOURCE ECON. 253 (1994) [hereinafter Edwards, *Ownership*])); Polishchuk &



FROM FUR TO FISH:  
RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
**Draft: Do not Cite or Quote w/o Author's Permission**

The intuition seems to be that the most obvious formula for allocating shares at the outset would distribute them equally to existing participants, but that differences in wealth, political experience, or skills diminish the likelihood that all claimants will agree on an initial equal allocation of rights, and hence delay institutional change.<sup>70</sup>

However, there are at least two grounds for doubting that heterogeneity is an obstacle to establishing private property. First, the hypothesis that heterogeneity is typically unhelpful is questionable even if one assumes that property rights usually are created in the private sphere. At its core, the hypothesis that heterogeneity is detrimental assumes that the obstacle to private agreement is a desire by the most successful parties under the status quo to preserve their existing entitlements in the face of redistributive pressures from less successful parties.<sup>71</sup> But the obstacle to private agreements allocating rights could be analyzed through another lens. In particular, where two parties with different degrees of historical success are having difficulty agreeing on how to allocate rights between them, the obstacle might be framed as the parties' identical interests in maximizing their entitlements under the new regime, not their differential success under the status quo. For example, even if two fishers have the same skills and are equally productive under the existing regime, they still might have difficulty agreeing on a new regime premised on equal shares if they are rational maximizers with the same objective of accumulating wealth.<sup>72</sup> The key point is that, even within the private sphere, it is unclear whether heterogeneity is disadvantageous. While the standard hypothesis

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Savvateev, *supra* note 31, at 107 (characterizing heterogeneity as detrimental); Rose, *supra* note 27, at 4 (arguing that heterogeneity reduces likelihood of collective action).

<sup>70</sup> One idea underlying the intuition may be that an equal distribution at the outset is a focal point. See, e.g., Smith, *supra* note 31, at 1128–30, 1163 (discussing role of psychological prominence, salience, and focal points in establishing property rights).

<sup>71</sup> For instance, Libecap emphasizes that harvesters with different fishing skills vary in their ability to catch fish. In turn, he maintains that more productive fishers will resist a new regime premised on equal sharing because it will not recognize their greater success under the preexisting regime. LIBECAP, *supra* note 10, at 22–23, 73–74, 82–84; see also Johnson & Libecap, *supra* note 31, at 1010–12 (offering Libecap's most complete explanation of difficulties caused by heterogeneity among fishers).

<sup>72</sup> My example is inspired by one provided by Lisa Martin. See Lisa L. Martin, *Heterogeneity, Linkage and Commons Problems*, in LOCAL COMMONS AND GLOBAL INTERDEPENDENCE: HETEROGENEITY AND COOPERATION IN TWO DOMAINS 71 (Robert O. Keohane & Elinor Ostrom eds., 1995). Imagine, Martin suggests, “two individuals . . . attempting to divide a dollar between themselves. Assume each has an identical utility function, wishing to capture as much of the dollar for himself as possible. This situation maximizes conflict of interest and illustrates that such conflicts may arise even when individuals are homogeneous.” *Id.* at 73.

FROM FUR TO FISH:  
 RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
 80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
**Draft: Do not Cite or Quote w/o Author's Permission**

characterizes the parties' differential success under the status quo as an obstacle, this heterogeneity actually may be beneficial if it is the parties' identical interest in wealth maximization that is impeding agreement, because differences may create opportunities for gains through trade.<sup>73</sup>

A second reason to question the theory that heterogeneity impedes the creation of private property is that it is even more difficult to characterize heterogeneity as presumptively detrimental once it is recognized that private property typically emerges through political rather than market ordering. In legislative and regulatory settings, heterogeneity may be helpful or harmful, depending on the distribution of costs and benefits. On the positive side, differences in wealth and political influence may be conducive to institutional change, if there is a wealthy subgroup within a larger group of resource users that is willing to act as a political entrepreneur. For example, a subgroup might undertake this role if the subgroup's members calculate that the benefits each member would derive in rearranging rights outweigh the costs that individual members would incur in initiating the rearrangement. On the other hand, heterogeneity may be detrimental if there is no subgroup motivated to initiate collective action and the relevant interests are unable to reach agreement privately to lobby regulators or legislators for change.<sup>74</sup>

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<sup>73</sup> Markets in individual quotas depend on fishers having different preferences for fishing and different unit costs of fishing. If every harvester spent the same amount to catch a unit of fish and had the same desire to fish, there would be no gains from trading and no purpose in creating individual transferable rights. See Duncan Snidal, *The Politics of Scope: Endogenous Actors, Heterogeneity and Institutions*, in LOCAL COMMONS AND GLOBAL INTERDEPENDENCE: HETEROGENEITY AND COOPERATION IN TWO DOMAINS 47, 64 (Robert O. Keohane & Elinor Ostrom eds., 1995) (arguing that "heterogeneous interests provide an essential basis for cooperative exchange" in markets); ROBERT N. STAVINS, MARKET-BASED ENVIRONMENTAL POLICIES: WHAT CAN WE LEARN FROM U.S. EXPERIENCE (AND RELATED RESEARCH)? 10 (KSG Working Paper No. RWP03-031, 2003), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=421720](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=421720) (arguing that market-based pollution systems will generate greater gains where there is significant cost heterogeneity among covered sources, and that "where abatement costs are more uniform across sources, the political costs of enacting an allowance trading approach are less likely to be justifiable").

<sup>74</sup> For a recent overview of the commons scholarship on the impact of heterogeneity on collective action that discusses Mancur Olson's hypothesis that inequality facilitates collective action, see Pranab Bardhan & Jeff Dayton-Johnson, *Unequal Irrigators: Heterogeneity and Commons Management in Large-Scale Multivariate Research*, in THE DRAMA OF THE COMMONS 87, 90 (Elinor Ostrom et al. eds., 2002) (arguing that "theoretical and case-study research has tended to diverge into two camps: those studies that find a positive role for heterogeneity, and those that point out a negative role"); see also Snidal, *supra* note 73, at 63 (arguing that "variety of forms and consequences of heterogeneity leads to a less than satisfying conclusion: the impact

FROM FUR TO FISH:  
RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
**Draft: Do not Cite or Quote w/o Author's Permission**

Below, I offer evidence consistent with the hypothesis that heterogeneity may be helpful when private property is created through a political process. Specifically, I discuss an important fishery in which a distinct subgroup of industry participants appears to have determined that the benefits of establishing private property outweighed the costs of initiating the rearrangement, and provided an impetus for shifting to tradable rights.<sup>75</sup>

## 2. Group Size

Many scholars analyzing the development of property rights argue that large numbers of parties complicate the introduction of new rights arrangements.<sup>76</sup> The idea is that larger numbers of interests complicate the task of developing an agreement to rearrange rights by increasing the number of parties whose concerns must be considered.

However, as with heterogeneity, there are grounds for doubting that large group size is a clear-cut obstacle to introducing private property. Large numbers of interests might be an obstacle to introducing private property if the typical mechanism for making the transition is private

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of heterogeneity is heterogeneous”).

For arguments in the scholarship on the origins of private property that heterogeneity may be beneficial, see SENED, *supra* note 1, at 133–54 (discussing role of political entrepreneurs in property rights formation); Terry L. Anderson & Peter J. Hill, *Cowboys and Contracts*, 31 J. LEGAL STUD. S489, S493 (2002) (“Property rights entrepreneurs contract to form coalitions to define and enforce property rights, and those coalitions develop rules that may rely on the coercive power of the state for enforcement.”); Banner, *supra* note 2, at S369 (arguing that transitions between property regimes may be “more likely in less egalitarian societies”). For a similar argument from a source outside the origins of private property scholarship, see NEIL K. KOMESAR, IMPERFECT ALTERNATIVES: CHOOSING INSTITUTIONS IN LAW, ECONOMICS, AND PUBLIC POLICY 70 (1994) (“[T]he greater the heterogeneity of the distribution, the greater the likelihood of collective action on behalf of the larger group because of the existence of small, high per capita stakes subgroups.”).

<sup>75</sup> See *infra* Part II.C.3.a.

<sup>76</sup> See, e.g., LIBECAP, *supra* note 10, at 21, 31, 38, 50, 70, 86, 117, 119 (characterizing large group size as detrimental); Edwards, *Rent-Seeking*, *supra* note 69, at 273 (same); Libecap, *supra* note 60, at 166 (same); Ostrom, *supra* note 69, at 261 (noting that, while attributes conducive to individual property rights are not “as well established as the attributes” conducive to communal property regimes, “[t]he size of the group involved . . . also affect[s] the costs of maintaining withdrawal-rights systems” such as ITQs (citing Edwards, *Ownership*, *supra* note 69)); Robert Repetto, *A Natural Experiment in Fisheries Management*, 25 MARINE POL’Y 251, 254–55 (2001) (implying small group size facilitates change); Rose, *supra* note 27, at 4 (suggesting collective action is inhibited if number of parties is “too large”). *But cf.*, e.g., Ostrom, *supra* note 69, at 257 (arguing that while group size has been described “as conducive to the initial organization of communal resources . . . more theoretical and empirical work is needed”).

FROM FUR TO FISH:  
 RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
 80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
**Draft: Do not Cite or Quote w/o Author's Permission**

ordering. Then large numbers would complicate the task of shifting to private property for the very reason identified by the standard story—larger numbers would increase the number of parties whose agreement would be required under the rule of unanimity that prevails in the marketplace.<sup>77</sup> But it is not clear that large numbers are an obstacle to implementing private property in the more commonly used political process. In the political realm, unanimous agreement of affected parties is not required to proceed, and instead success typically depends on convincing a certain number of individuals in regulatory and legislative institutions that the move to private property is desirable.

The conventional picture of the political process suggests that small groups are more likely to prevail in the political realm than large groups.<sup>78</sup> This is assumed to be the case because the individual members of a small group may be more likely to have larger stakes in the outcome of a policy dispute than individual members of a large group. In turn, these larger stakes may motivate the small group members to organize. In addition, the costs of organizing small groups may be lower than the costs of organizing large groups, given that there are fewer individuals to contact.

However, extensions of standard theories of collective action suggest that there is no reason to presume that small groups routinely will prevail in the political process while large groups will lose. Contrary to the conventional wisdom that politics is the preserve of small groups, these extensions imply that groups of either size can prevail in the political arena.<sup>79</sup> For example, if the expected rents of collective action are distributed unequally among the members of a large group, there may be a small subgroup or a political entrepreneur sufficiently motivated to organize on behalf of the large group. Even if the expected rents of

<sup>77</sup> KOMESAR, *supra* note 74, at 100 (“Many impediments to transacting can be traced to the numbers of participants necessary to reach a solution and, in turn, the dilution of per capita stakes.”).

<sup>78</sup> See, e.g., KOMESAR, *supra* note 74, at 54 (criticizing interest group theory of politics for overemphasizing “overrepresentation of concentrated interests”); Einer R. Elhauge, *Does Interest Group Theory Justify More Intrusive Judicial Review?*, 101 *YALE L.J.* 31, 35–44 (1991) (identifying key themes of interest group theory of lawmaking).

<sup>79</sup> Notably, there are many policy areas where large groups prevail over small groups. Clean air legislation, for example, might be interpreted as protecting the interests of the large and diffuse group of breathers, while imposing costs on smaller, concentrated groups of polluters. See generally Richard L. Revesz, *Federalism and Environmental Regulation: A Public Choice Analysis*, 115 *HARV. L. REV.* 553 (2001) (discussing relevance of public choice theory to environmental regulation).

FROM FUR TO FISH:  
RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
**Draft: Do not Cite or Quote w/o Author's Permission**

collective action are distributed equally among the members of the large group, a large group may act if its members enjoy sufficiently large individual stakes. The costs of large-group action also might be manageable notwithstanding the size of the group, for example, if the members of the large group are readily identifiable, or if media attention provides a low-cost avenue for spreading information.<sup>80</sup>

The key point to underscore is that recognizing that private property is formed primarily through political rather than private ordering throws into doubt the standard story that small group size is presumptively more conducive to establishing private property than large group size. While it may be easier for small groups to negotiate new rights arrangements privately, there is no reason to assume a priori that large groups will be disadvantaged in the political process. Instead, whether small or large groups will prevail depends on a range of factors, including the distribution of the expected rents from collective action, “the complexity of the issue,” or the characteristics of user groups.<sup>81</sup> Consistent with the prediction that both large and small groups can prevail in the political arena, I provide evidence below that the fisheries that have shifted to tradable rights have been composed of groups of fishers of various sizes.<sup>82</sup>

*D. Summary*

By analogizing rights formation to a market process, the prevailing stories about the evolution of property rights neglect the significance of the political process through which private property more typically is established. Although the collective-choice rules for establishing private

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<sup>80</sup> This discussion of why large and small groups may prevail in the political process is drawn from KOMESAR, *supra* note 74, at 53–122. Komesar emphasizes the potential for majorities, as well as minorities, to dominate political processes, notwithstanding the conventional focus on minoritarian influence; *see also* DANIEL SHAVIRO, WHEN RULES CHANGE: AN ECONOMIC AND POLITICAL ANALYSIS OF TRANSITION RELIEF AND RETROACTIVITY 70 (2000) (“[S]mall groups with concentrated interests can disproportionately either win or lose in the political process.”); WOLF, JR., *supra* note 48, at 42–44, 173–74 (referring to possibilities for minority exploitation of majorities and majority exploitation of minorities); Elhauge, *supra* note 78, at 35–44, 64–65 (surveying interest group theory predicting small groups will be more successful than large groups, but also noting that large groups have advantages in political process).

<sup>81</sup> KOMESAR, *supra* note 74, at 73, 88.

<sup>82</sup> *See infra* Part II.C.3.b; *see also* Alston et al., *supra* note 69, at 245 (referring to examples where large groups have triumphed over small groups in disputes about property rights); Higgs, *supra* note 48 (describing scenario in which large group of downstream fishermen prevailed over small group of upstream fishermen in Washington salmon fishery); Ostrom, *supra* note 69, at 258 (referring to studies suggesting different optimal numbers in different situations).

FROM FUR TO FISH:  
 RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
 80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
**Draft: Do not Cite or Quote w/o Author's Permission**

property vary, they rarely require the unanimous agreement of the affected parties. Recognizing the distinctive decisionmaking rules that apply in the political context is important not only because variations in these rules may affect the probability of shifting to private property. It is also important because the expected impact of many of the variables highlighted in the standard accounts of the origins of private property changes once the political character of property rights formation is factored into the equation. The expected distribution of the benefits and costs of private property among the groups most likely to be influential in the political process becomes more significant than the aggregate level of those benefits and costs. In addition, expectations about the level of resource utilization most conducive to introducing private property may shift once the political character of property rights formation is recognized. Finally, small group size and homogeneity become less solid predictors of whether private property will emerge under a more avowedly political understanding of private property formation, as the agreement of each and every affected party is no longer a precondition for change.

Part II of this Article offers a case study of property rights formation in U.S. federal coastal fisheries that underscores both the political character of the process by which property rights typically are established and the need to take seriously that political process in determining the probability of change. Part II.A introduces the concept of individual transferable quotas. Part II.B analyzes the prevalence of tradable rights in federal coastal fisheries. Part II.C considers the extent to which the hypotheses discussed above explain the pattern of individual property rights formation in coastal fisheries. At the end of Part II.C, I briefly summarize my findings about why tradable rights have been slow to emerge in these fisheries.

II  
 CASE STUDY OF INDIVIDUAL RIGHTS FORMATION IN  
 U.S. FEDERAL COASTAL FISHERIES

*A. Background*

*1. Three Waves of Ocean Enclosures*

For over six decades, a movement has been underway around the

FROM FUR TO FISH:  
RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
**Draft: Do not Cite or Quote w/o Author's Permission**

world to enclose the oceans that cover at least seven-tenths of the earth.<sup>83</sup> This enclosure movement has progressed in a series of waves, similar to the famous enclosures of common lands in England that began in the fifteenth century.<sup>84</sup> Three waves of oceans enclosures in particular might be distinguished.<sup>85</sup>

In the first wave, coastal countries began creating national property rights in parts of the oceans that historically had been accessible to all.<sup>86</sup> In a decision out of sync with its prevailing multilateralist posture immediately following World War II, the United States initiated the modern oceans enclosure movement in 1945 by unilaterally extending its jurisdiction over the continental shelf and proclaiming the right to establish

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<sup>83</sup> DAVID HUNTER ET AL., *INTERNATIONAL ENVIRONMENTAL LAW AND POLICY* 655 (2d ed. 2002) (noting that “at least seven-tenths” of earth is covered by ocean (citing *GAIA: AN ATLAS OF PLANET MANAGEMENT* (Norman Myers ed., 1993))).

<sup>84</sup> See Boyle, *supra* note 20, at 33–37, 34 n.2 (canvassing scholarship on enclosure movement in England, noting that it involved series of enclosures); Ellickson, *supra* note 8, at 1391 (noting that land enclosures took place in waves between 1450 and 1849); Harry N. Scheiber & Christopher J. Carr, *From Extended Jurisdiction to Privatization: International Law, Biology, and Economics in the Marine Fisheries Debates, 1937–1976*, 16 *BERKELEY J. INT’L L.* 10, 54 (1998) (referring to “modern movement for ‘ocean enclosure’ through the extension of coastal jurisdiction beyond the old three-mile limit”). See generally Sharman, *supra* note 19 (providing introduction to enclosure movement in England). The parallel between the land and marine enclosures is not exact, for several reasons. For example, oceans (including ocean fisheries) probably were regulated less than common lands prior to enclosure in England. See Ellickson, *supra* note 8, at 1388–91 (describing institutionalized property rights in medieval open-field system).

<sup>85</sup> For richer historical treatments of the evolution of the regulation of the oceans, see generally ANN L. HOLLICK, *U.S. FOREIGN POLICY AND THE LAW OF THE SEA* (1981) (outlining history of twentieth-century U.S. oceans policy); R.P. Anand, *Changing Concepts of Freedom of the Seas: A Historical Perspective*, in *FREEDOM FOR THE SEAS IN THE 21ST CENTURY: OCEAN GOVERNANCE AND ENVIRONMENTAL HARMONY* 72 (John M. Van Dyke et al. eds., 1993) (offering concise history of evolution of freedom of seas concept); Harry N. Scheiber & Chris Carr, *Constitutionalism and the Territorial Sea: An Historical Study*, 2 *TERRITORIAL SEA J.* 67 (1992) (examining changes in U.S. oceans policy from perspective of separation of powers issues); Scheiber & Carr, *supra* note 84 (examining history of idea of privatizing fisheries).

<sup>86</sup> See HOLLICK, *supra* note 85, at 9 (“At the beginning of the [twentieth] century, the oceans could be characterized economically as a common property resource and politically and socially as a global commons.”); Anand, *supra* note 85, at 72–83 (discussing evolution of freedom of seas concept).

On the concept of the territorial sea, see HOLLICK, *supra* note 85, at 5–6, 9–10 (discussing historical concept of territorial sea); Scheiber & Carr, *supra* note 85, at 68 (referring to original U.S. announcement of three-mile territorial sea in late eighteenth century); Scheiber & Carr, *supra* note 84, at 13–14 (discussing concept of “three-mile offshore limit of sovereignty” and challenges to it).

FROM FUR TO FISH:  
RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
**Draft: Do not Cite or Quote w/o Author's Permission**

conservation zones for fisheries.<sup>87</sup> Other countries then followed suit, proclaiming national jurisdiction over ever-larger expanses of marine fisheries, either as part of, or independent of, broader claims to the oceans.<sup>88</sup> The 1982 Convention on the Law of the Sea codified these extensions of national jurisdiction, establishing the right of countries to claim 200-mile Exclusive Economic Zones (EEZs) in which they could regulate fishing, as well as other activities.<sup>89</sup>

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<sup>87</sup> Continental Shelf Proclamation, 10 Fed. Reg. 12,303 (Oct. 2, 1945); Fisheries Proclamation, 10 Fed. Reg. 12,304 (Oct. 2, 1945). These are known as the Truman Proclamations.

<sup>88</sup> See HOLLICK, *supra* note 85, at 18–19, 61, 67–95 (discussing historical importance of 1945 Truman Proclamations, under which U.S. unilaterally claimed jurisdiction over natural resources of continental shelf and right to establish conservation zones to protect high seas fisheries, and unilateral claims subsequently made by Latin American countries); HUNTER ET AL., *supra* note 83, at 669–70 (discussing “phenomenon of ‘creeping jurisdiction’” before and after 1982 Convention on the Law of the Sea); Anand, *supra* note 85, at 79 (referring to Latin American claims of late 1940s and early 1950s); *id.* at 81 (noting that coastal state claims increased after 1960, such that “nearly 35% of the ocean . . . was claimed by coastal states” by 1973); Scheiber & Carr, *supra* note 84, at 15 (“With the Truman Proclamation, the United States set in motion the modern diplomacy of ocean enclosures by the coastal states.”).

In 1947, Chile became the first country to assert a claim for jurisdiction out to 200 miles. HOLLICK, *supra* note 85, at 75.

<sup>89</sup> See HUNTER ET AL., *supra* note 83, at 660–62 (describing jurisdictional zones established by 1982 Convention on the Law of the Sea, including EEZ); *id.* at 659, 667 (noting that Convention came into force in 1994, but that U.S. has yet to ratify it, even though U.S. complies with it); *Rescuing the Law of the Sea*, N.Y. TIMES, Aug. 22, 2004, § 4 (Week in Review), at 8 (urging Senate ratification of 1982 Convention on the Law of the Sea).

The 1982 Convention followed many years of negotiations, and by the time it was agreed upon, many countries had claimed 200-mile zones, many of which dated to the mid-1970s. See HUNTER ET AL., *supra* note 83, at 657–59 (briefly referring to history of 1982 Convention on the Law of the Sea); Anand, *supra* note 85, at 77, 80–83 (same); Christopher J. Carr & Harry N. Scheiber, *Dealing With a Resource Crisis: Regulatory Regimes For Managing the World's Marine Fisheries*, 21 STAN. ENVTL. L.J. 45, 51–53 (2002) (same); James E. Wilen, *Renewable Resource Economists and Policy: What Differences Have We Made?*, 39 J. ENVTL. ECON. & MGMT. 306, 312 (1999) (describing simultaneous expansion of jurisdiction over fisheries to 200 miles by United States and other coastal nations).

The background to the creation of the U.S. EEZ is as follows. After extending its exclusive jurisdiction over fisheries out to twelve miles in 1966, the U.S. further extended its control over fisheries out to 200 miles in 1976 by legislating “a fishery conservation zone” that ran from three to 200 miles from shore. In 1983, the zone was absorbed into the U.S. EEZ. See Pub. L. No. 89-658, 80 Stat. 908 (2000) (codified at 16 U.S.C. §§ 1091–94) (repealed 2000) (describing 1966 jurisdiction extension); Magnuson-Stevens Fishery Conservation and Management Act of 1976, Pub. L. No. 94-265, 90 Stat. 331 (codified as amended at 16 U.S.C. § 1801–02 (2000) (establishing 1976 fishery conservation zone); Proclamation 5030, 48 Fed. Reg. 10,605 (Mar. 14, 1983) (establishing U.S. EEZ); U.S. COMM’N ON OCEAN POLICY, *supra* note 37, at 227 (referring to relationship between fishery conservation zone and U.S. EEZ).



FROM FUR TO FISH:  
RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
**Draft: Do not Cite or Quote w/o Author's Permission**

In the second wave of enclosure, countries domestically began subdividing their expanded national rights over the oceans into communal regimes. In the U.S. and elsewhere, communal rights in fisheries have been established on several scales. The 1976 congressional legislation that expanded U.S. jurisdiction over fisheries out to 200 miles also established a domestic regulatory regime that assigned primary responsibility for managing marine fisheries in federal waters to eight regional councils. Each of these councils effectively has become the communal governor of the fisheries within a relatively wide geographically defined jurisdiction.<sup>90</sup>

In many fisheries, the establishment of a collective regime at the regional level was followed by the creation of even smaller scale, species-specific communal regimes. For example, the regional fishery management councils have established numerous limited entry licensing regimes.<sup>91</sup> A limited entry regime carves out a smaller community of fishers from a council's jurisdiction by excluding fishers from taking a particular species unless the fisher holds a valid license for the species. What keeps a limited entry license from being a full-fledged individual property right is that the license does not grant a fisher the right to a specific amount of fish. Instead, limited entry licensing delimits the group of fishers who can compete for a species without giving any of these fishers

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For a brief discussion of the background to the creation of the U.S. 200-mile fishery conservation zone in 1976 which emphasizes that fishermen from New England, the Pacific coast, and Alaska urged the extension of national jurisdiction in the face of growing competition from foreign vessels on U.S. shores, see MICHAEL L. WEBER, FROM ABUNDANCE TO SCARCITY: A HISTORY OF U.S. MARINE FISHERIES POLICY 65–67, 69, 83–84 (2002). For richer histories of twentieth-century U.S. oceans policy, see sources cited *supra* note 85.

Notably, countries still continue to claim parts of the oceans. See Andrew C. Revkin, *Jockeying for Pole Position*, N.Y. TIMES, Oct. 10, 2004, §4 (Weekend Review), at 4 (describing various countries' claims to Arctic).

<sup>90</sup> The jurisdiction of the eight regional fishery management councils originally was set out at Fishery Conservation and Management Act of 1976, Pub. L. No. 94-265, 90 Stat. 347 § 302(a) (1976). The geographic boundaries of the councils' authority is now codified at 16 U.S.C. § 1852(a)(1) (2000).

<sup>91</sup> G.H. Darcy & G.C. Matlock, *Development and Implementation of Access Limitation Programmes in Marine Fisheries of the United States*, in USE OF PROPERTY RIGHTS IN FISHERIES MANAGEMENT 96, 98 (Food & Agric. Org. of the U.N., Fisheries Technical Paper No. 404/2, Ross Shotton ed., 2000) (Proceedings of the FishRights99 Conference) (“As of October 1999 there were 15 moratoria [on new entrants] and 11 license/vessel limitation programmes in place in federally managed U.S. marine fisheries,” although “extent of use of these programmes varies considerably among regions of the country”), available at <http://www.fao.org/docrep/003/x8985E/x8985e05.htm>; *id.* app. 2, at 105 (depicting graphically “Limited Access Management Measures in U.S. Fisheries”).

FROM FUR TO FISH:  
 RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
 80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
**Draft: Do not Cite or Quote w/o Author's Permission**

a right to a specific quantity of fish.<sup>92</sup> In addition to—or instead of—limiting entry, councils have found other ways to protect fisheries, none of which create individual rights in specific quantities of fish. These other tools include a total allowable limit on the amount of fish that may be harvested or limits that resemble conventional command-and-control regulation used in other environmental policy areas, such as regulating the kind of gear, the size of boats, and the length of fishing seasons.<sup>93</sup>

For over three decades, economists and others have been promoting, with limited success, a third wave of enclosure that would create individual property rights out of communal or national regimes: the establishment of individual transferable quotas.<sup>94</sup> Individual transferable quotas are

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<sup>92</sup> Peter H. Pearce, *From Open Access to Private Property: Recent Innovations in Fishing Rights as Instruments of Fisheries Policy*, 23 OCEAN DEV'T & INT'L L. 71, 75 (1992) (“With license limitation, fisheries remained common property in the sense that all the fishermen holding licenses shared the right to fish the stocks, but others were now excluded.”). On the history of the idea of limited entry, see generally *id.* (discussing innovations in fisheries, including license limitation); Scheiber & Carr, *supra* note 84 (discussing history of idea of privatizing fisheries); James E. Wilen, *Limited Entry Licensing: A Retrospective Assessment*, 5 MARINE RESOURCE ECON. 313 (1988) (offering retrospective assessment of limited entry as of late 1980s); Wilen, *supra* note 89 (surveying developments in fisheries economics and policy, including limited entry).

Two other characteristics of limited entry licenses are worth noting. Sometimes the community of fishers created by a limited entry regime is defined very narrowly, with particular schemes established for fishers taking a particular species, using a specific type of gear in an identified geographic area. Second, while typically allocated for free to existing fishers as of a particular date, limited entry licenses in some fisheries are transferable. See COMM. TO REVIEW INDIVIDUAL FISHING QUOTAS, NAT'L RES. COUNCIL, SHARING THE FISH: TOWARD A NATIONAL POLICY ON INDIVIDUAL FISHING QUOTAS 117–18 (1999) (describing limited licenses).

<sup>93</sup> See COMM. TO REVIEW INDIVIDUAL FISHING QUOTAS, *supra* note 92, at 115–38 (surveying fisheries management techniques, although not following categorization used in this Article).

<sup>94</sup> The fisheries-specific formulation of tradable environmental property rights often is credited to a 1973 paper by economist Francis Christy. FRANCIS T. CHRISTY, JR., FISHERMAN QUOTAS: A TENTATIVE SUGGESTION FOR DOMESTIC MANAGEMENT (Law of the Sea Inst., Univ. of R.I., Occasional Paper No. 19, 1973) (suggesting system of “fisherman quotas,” under which boat owners (and possibly non-owning boat captains) would be assigned percentage of catch, which they could lease to other individuals, but not sell, except to agency regulating fishery); see also Wilen, *supra* note 89, at 321 n.32, 322 & nn.33–35 (discussing role of number of economists in implementing individual transferable quotas in U.S. and in other countries, including University of Delaware economics professor Lee Anderson, who was “instrumental in promoting and designing” individual transferable quotas for Atlantic surfclam and ocean quahog fisheries).

For intellectual histories of the concept of individual transferable quotas, see Anthony D. Scott, *Conceptual Origins of Rights Based Fishing*, in RIGHTS BASED FISHING 11, 26 (Philip A.

FROM FUR TO FISH:  
RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
**Draft: Do not Cite or Quote w/o Author's Permission**

analogous to other property-based ideas for managing environmental resources, such as marketable pollution permits, transferable grazing rights, and tradable rights in habitat for endangered species, that come out of the growing interest in property rights theory in economics in the 1960s.<sup>95</sup> Individual transferable quotas begin with a cap on the total amount of a particular fish species that can be harvested in a defined area: the total allowable catch. Under individual transferable quotas, rights adding up to this cap are distributed among harvesters, who may trade the rights. These rights typically are denominated as rights to a percentage of the harvest, which are translated annually into a specific volume of fish depending on the total amount of fish allowed to be caught that year.<sup>96</sup> The transferability

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Neher et al. eds., 1989) (crediting idea of individual transferable quotas to Christy's 1973 paper); Wilen, *supra* note 89, at 316–17, 321–22 (crediting Christy with idea of individual transferable quotas, arguing that they remained “a theoretical curiosity” even among fisheries economists in late 1970s, and implying that individual transferable quotas became more widely accepted after experiments with them in early 1980s outside U.S.). *See generally* Pearse, *supra* note 92 (tracing innovations in fisheries); Scheiber & Carr, *supra* note 84 (providing excellent intellectual history of individual transferable quotas and characterizing them as variant on limited entry, dating discussion of idea to early 1970s, and suggesting Christy may not have first proposed concept).

<sup>95</sup> *See* Wilen, *supra* note 89, at 316 (analogizing individual transferable quotas to marketable pollution permits). *See generally* Bruce A. Ackerman & Richard B. Stewart, Comment, *Reforming Environmental Law*, 37 STAN. L. REV. 1333 (1985) (discussing ideas for managing pollution); Robert H. Nelson, *How to Reform Grazing Policy: Creating Forage Rights on Federal Rangelands*, 8 FORDHAM ENVTL. L.J. 645 (1997) (discussing ideas for managing grazing rights); David Sohn & Madeline Cohen, Note, *From Smokestacks to Species: Extending the Tradable Permit Approach From Air Pollution to Habitat Conservation*, 15 STAN. ENVTL. L.J. 405 (1996) (discussing ideas for managing habitat for endangered species).

On the origins of the concept of tradable rights in environmental resources, see Scheiber & Carr, *supra* note 84, at 43 (referring to “rising interest . . . in property rights theory . . . in the discipline of economics”). However, in the 1970s, environmental and natural-resource economists focused on taxes rather than property rights instruments. *See* EGGERTSSON, *supra* note 9, at 267–68 (noting that, until 1970s, most fisheries economists advocated taxes or subsidies, but many economists now favor individual transferable quotas); Wallace E. Oates, *From Research to Policy: The Case of Environmental Economics*, 2000 U. ILL. L. REV. 135, 141–47 (discussing initial preference among economists for taxes to regulate pollution, and policymakers' turn toward tradable pollution permits); Wilen, *supra* note 89, at 311–12 (pointing out that “fisheries economists through the early 1970s, like their counterparts examining pollution problems over the same period,” focused mainly on taxes rather than property rights approaches). Although there is now less focus on using taxes or fees to regulate resources, these instruments still retain adherents and there remains a literature about whether taxes or tradable rights are optimal.

A number of scholars questioning the standard diagnosis and prescription have underscored the potential for successful communal management of common pool resources. *See* Dietz et al., *supra* note 27, at 6–26 (providing overview of history of commons scholarship and key concepts).

<sup>96</sup> New Zealand initially denominated individual transferable quotas “as a fixed tonnage.” John H. Annala, *New Zealand's ITQ System: Have the First Eight Years Been a Success or a*

FROM FUR TO FISH:  
 RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
 80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
**Draft: Do not Cite or Quote w/o Author's Permission**

of the individual quota rights often is restricted to address distributional concerns in fishing communities, although the scale and content of restrictions on alienability differ considerably among programs.<sup>97</sup>

The introduction of individual transferable quotas is a dramatic development in a fishery. As mentioned above, individual transferable quotas are distinct from any other management regime because they grant fishers entitlements to specific quantities of the catch. Granting these rights significantly changes the incentives of fishers in ways predicted by the normative arguments economists offer for individual transferable quotas and private property more generally.<sup>98</sup> The next Section examines the arguments for and against tradable rights in fisheries, by way of background to the analysis of why U.S. coastal fisheries have made only slow progress in implementing these rights.

## 2. Normative Arguments for Individual Transferable Quotas

There are three standard normative economic arguments for individual transferable quotas. The first argument relates to the need to promote optimal levels of investment in fishing. Private property often is advocated as a means of stimulating new socially beneficial investment, such as research and development (in the case of patents) or artistic creation (in the case of copyright). In contrast, economists advocate individual transferable quotas to address inefficiently high levels of investment in fishing.<sup>99</sup> Many fisheries are plagued now by excessive numbers of fishers and vessels who

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*Failure?*, 6 REV. IN FISH BIOLOGY & FISHERIES 43, 55 (1996). Faced with the need to buy back individual quotas to protect fish stocks, however, the government then switched to rights denominated as a proportion of the total allowable catch. *See id.* at 55–56.

<sup>97</sup> U.S. GEN. ACCOUNTING OFFICE, GAO-04-277, INDIVIDUAL FISHING QUOTAS: METHODS FOR COMMUNITY PROTECTION AND NEW ENTRY REQUIRE PERIODIC EVALUATION 9–11 (2004) (listing various limitations on transferability used in foreign and U.S. fisheries to protect fishing communities); *id.* at 18–19 (discussing difficulties created by limitations on transferability).

<sup>98</sup> On the significance of individual transferable quotas, see Scheiber & Carr, *supra* note 84, at 19 n.33 (stating that individual transferable quota “reaches to the reform of the basic structure of the fishing industry by excluding those who are not awarded a property right in the resource (or a franchise or license, as a form of vested property, for access to the resource)”). However, it should be emphasized that the introduction of individual transferable quotas does not put an end to government regulation, and many forms of regulation may persist. *See Carr & Scheiber, supra* note 89, at 48.

<sup>99</sup> *See* Keith E. Casey et al., *The Effects of Individual Vessel Quotas in the British Columbia Halibut Fishery*, 10 MARINE RESOURCE ECON. 211, 222 (1995) (arguing that “[e]conomists and other analysts of quota programs have cited the potential benefits to be gained by rationalization of fishing” and that “[v]irtually all [the] literature has focused on” expected “input savings”).

FROM FUR TO FISH:  
RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
**Draft: Do not Cite or Quote w/o Author's Permission**

compete for shares of the allowable catch, and thereby depress net earnings from fishing.<sup>100</sup> By providing fishers with guaranteed shares of the harvest, individual transferable quotas reduce the incentive to overinvest in new capital and labor to beat other fishers to the catch. In addition to deterring new overinvestment, individual transferable quotas also lower current overinvestment. In particular, the ability to transfer individual quotas allows some of the excessive numbers of fishers and vessels to exit the industry by enabling less efficient harvesters to sell out. After individual transferable quotas are introduced, the number of fishers in the affected fishery often falls dramatically and the incomes of the remaining fishers rise, especially if fishers are allowed to trade their rights with few restrictions.<sup>101</sup>

According to the second argument, economists maintain that individual quotas should increase the value of the output from the fishery. In the absence of individual quotas, fishing often degenerates into a race in which fishers compete to harvest as much of the catch as they can before regulators end the fishing season to protect the stocks. The incentives are very different in a fishery with individual quotas. Secure in the knowledge that they are entitled to a specific share of the catch, fishers with individual quotas may take more time to harvest a better-quality, higher-value product over a longer period of time. For example, the implementation of individual transferable quotas in the British Columbia halibut fishery extended the fishing season and allowed harvesters to sell more higher-priced fresh fish over more of the year.<sup>102</sup>

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<sup>100</sup> Jon G. Sutinen, Fisheries Management & Governance: An Academic's Perspective, Presentation at the Managing Our Nation's Fisheries Conference 5 (Nov. 13, 2003) (slides on file with the *New York University Law Review*) (noting that forty of sixty-one U.S. fisheries assessed have overcapacity, and estimating fleet overcapacity in New England groundfish fishery at sixty-three percent, Gulf of Mexico shrimp fishery at forty-one percent, and West Coast groundfish fishery at seventy-five percent).

<sup>101</sup> See, e.g., U.S. GEN. ACCOUNTING OFFICE, GAO-03-159, INDIVIDUAL FISHING QUOTAS: BETTER INFORMATION COULD IMPROVE PROGRAM MANAGEMENT 35–36 (2002) (reporting significant reductions in number of quota holders after introduction of individual transferable quotas, including 26.8% drop in number of quota holders in Alaska halibut fishery between 1995 and 2001, even though there are limits on transferability).

In addition, the number of crew working on fishing vessels may decline precipitously, although the remaining crew may earn more because they work longer. See COMM. TO REVIEW INDIVIDUAL FISHING QUOTAS, *supra* note 92, at 391.

<sup>102</sup> See COMM. TO REVIEW INDIVIDUAL FISHING QUOTAS, *supra* note 92, at 123 (noting that, after individual vessel quotas were introduced for halibut in British Columbia, “[h]alibut were marketed as fresh fish rather than as frozen product, and there was a corresponding increase in landed price”); Wilen, *supra* note 89, at 319 & n.26 (noting that individual transferable quotas

FROM FUR TO FISH:  
 RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
 80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
**Draft: Do not Cite or Quote w/o Author's Permission**

Third, individual transferable quotas sometimes are advocated as a means of promoting a greater sense of stewardship among fishers.<sup>103</sup> According to this line of argument, allocating individual harvesting rights to shares of the catch should encourage fishers to reduce their harvest in the short term in exchange for future benefits. This argument evokes Demsetz's suggestion that private property converts an owner into "a broker whose wealth depends on how well he takes into account the competing claims of the present and the future."<sup>104</sup> The evidence of greater stewardship is anecdotal. But there are indications that fishers who own individual transferable quotas may be more committed "to the long-term sustainability of their stocks," less likely to seek increases in the overall catch that is allowed, and more willing to invest in "local cooperation and voluntary controls."<sup>105</sup>

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have given "fishermen the incentive to produce raw products that would sell into higher valued markets," citing, as examples, consequences of tradable rights in British Columbia halibut and some New Zealand and Australia bluefin tuna fisheries). On the experience in the Alaska halibut fishery after the implementation of individual transferable quotas, see U.S. GEN. ACCOUNTING OFFICE, *supra* note 101, at 20–21 (stating that individual fishing quotas in Alaska extended "the halibut and sablefish fishing seasons in some areas from several days to 8 months" and "the fresh halibut market . . . increased from 15 percent of the total halibut market in 1994 to 46 percent in 2001"); *id.* at 26 (illustrating graphically changes in halibut ex-vessel prices between 1984 and 2001, which suggests increases in prices after 1995, but also declines, depending on baseline for making comparisons).

<sup>103</sup> See COMM. TO REVIEW INDIVIDUAL FISHING QUOTAS, *supra* note 92, at 35–36 (noting that some argue that quota holders have an incentive to "encourage behavior to conserve the resource, conduct needed research, and assist the enforcement and monitoring," but suggesting that "[t]he net effect . . . on conservation" would depend on a number of factors).

<sup>104</sup> Demsetz, *Toward*, *supra* note 1, at 355. For an example of the argument applied to fisheries, see Avi Brisman, Comment, *A Less Tragic Commons?: Using Harvester and Processor Quotas to Address Crab Overfishing*, 26 SEATTLE U.L. REV. 929, 974–75 (2003) (arguing that rationalizing Alaska crab fishery "should result in . . . improved crab stock management," more careful fishing practices that reduce ghost fishing, and reduced risk of overharvesting).

In addition to the three standard arguments discussed above, other arguments also are offered on behalf of individual transferable quotas. For example, it often is suggested that individual quotas improve the safety of fishing. The idea is that, by eliminating the need to race for fish, individual transferable quotas allow fishers to catch more safely. See, e.g., 142 CONG. REC. 23,704 (1996) (statement of Sen. Murray) (arguing during Senate debate on 1996 amendments to Magnuson-Stevens Act that individual transferable quotas could improve safety in Alaska crab fishery, as they have in halibut fishery). The crab fishery is one of the most dangerous fisheries in the world. See Mike Lewis, *Crabbing Industry Faces A Sea Change*, SEATTLE POST-INTELLIGENCER, Oct. 15, 2003, at A1 ("At least 70 people died in Alaska's crab fisheries in the 1990s.").

<sup>105</sup> SUZI KERR ET AL., EVALUATING THE NEW ZEALAND INDIVIDUAL TRANSFERABLE QUOTA MARKET FOR FISHERIES MANAGEMENT 15–17 (Motu Econ. & Pub. Pol'y Res. Trust, Working

FROM FUR TO FISH:  
RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
**Draft: Do not Cite or Quote w/o Author's Permission**

In spite of these arguments supporting individual transferable quotas, they remain controversial. The criticism focuses primarily on equity and environmental concerns.<sup>106</sup> First, like the famous enclosures of the English commons, individual transferable quotas are accused of privileging aggregate efficiency over equity.<sup>107</sup> As mentioned above, one argument for individual transferable quotas is that implementing them will improve efficiency by reducing the excessive numbers of fishers and capital investment that commonly plague many fisheries. Especially if they have little experience with individual transferable quotas,<sup>108</sup> particular interests in fisheries, such as small-scale fishers, often argue that individual transferable quotas will take away their access to the rents generated by commercial fishing and will consolidate harvesting in a few large firms. These fishers are concerned that they will not receive enough quota shares in the initial allocation to continue to fish profitably and that they may not be able to buy additional shares in the secondary market because they lack access to capital.<sup>109</sup> A second criticism of individual transferable quotas rejects the argument that they promote greater stewardship. While some environmentalists support individual transferable quotas, others argue that implementing them will damage the marine environment if, for example, lax enforcement permits fishers to take more than the volume of fish for which they have quota shares.<sup>110</sup>

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Paper No. 2003-02) (2003) (providing anecdotal evidence about New Zealand experience), available at [http://www.motu.org.nz/nz\\_fish.htm](http://www.motu.org.nz/nz_fish.htm); see also LAURA JONES & MIRIAM BIXBY, MANAGING FISH: TEN CASE STUDIES FROM CANADA'S PACIFIC COAST 106 (2003) (same, discussing Canadian experience); Repetto, *supra* note 76, at 255–57, 261–62 (same, discussing American and Canadian experience in scallop fisheries).

<sup>106</sup> See MARINE FISH CONSERVATION NETWORK, INDIVIDUAL FISHING QUOTAS: ENVIRONMENTAL, PUBLIC TRUST, AND SOCIOECONOMIC IMPACTS 1 (2004) (outlining concerns about individual fishing quota programs), available at [http://www.conservefish.org/site/pubs/network\\_reports/ifqwhitepaper\\_highres.pdf](http://www.conservefish.org/site/pubs/network_reports/ifqwhitepaper_highres.pdf). In the 1990s at least, the Marine Fish Conservation Network (MFCN) was comprised mainly of conservation organizations, although it also included fisher organizations. See WEBER, *supra* note 89, at 186.

<sup>107</sup> See MARINE FISH CONSERVATION NETWORK, *supra* note 106, at 10–12 (expressing concerns about social costs of individual fishing quota programs); Boyle, *supra* note 20, at 33–36 (discussing perspectives on enclosure).

<sup>108</sup> See Alcock, *supra* note 28, at 249–95 (arguing that small-scale fishers may come to support individual transferable quotas after they acquire experience with them, drawing on case study of fishers in Nova Scotia).

<sup>109</sup> See sources cited *infra* note 276. Processors also may oppose individual transferable quotas, or attempt to secure rights in the initial allocation instead. See sources cited *infra* note 280.

<sup>110</sup> See COMM. TO REVIEW INDIVIDUAL FISHING QUOTAS, *supra* note 92, at 36 (noting concerns that individual transferable quotas may induce fishers to highgrade (i.e., selectively

FROM FUR TO FISH:  
 RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
 80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
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The criticisms of individual transferable quotas on distributional and environmental grounds can be—and indeed, have been—addressed at least partially through program design where quota shares are introduced.<sup>111</sup> The

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harvest higher-value fish), or quota bust (“misreport catches”).

A second biologically-oriented criticism is that individual transferable quotas are inconsistent with ecosystem-based management, on the ground that they are premised on single species management. But individual transferable quotas potentially could be consistent with ecosystem-based management if, for example, total allowable catches were established taking into account the needs of the ecosystem as a whole and individuals quotas were introduced in the various fisheries in an ecosystem. See generally E.K. Pikitch et al., *Ecosystem-Based Fishery Management*, 305 *SCI.* 346 (2004) (explaining and advocating ecosystem-based fishery management); Andrew Freedman, *Snowe Says Support for Magnuson Reauthorization Fizzling*, ENV'T & ENERGY DAILY, Sept. 15, 2004 (“Many in the environmental community believe [individual transferable] quotas are incompatible with ecosystem-based conservation because they focus on individual species rather than taking a broader approach.”), at <http://www.eenews.net/EEDaily.php>.

Some environmentalists also object to individual transferable quotas because of concerns that they will give rise to expectations among fishers that they hold property rights in fisheries and consequently make it harder to take measures to protect fish stocks. See *infra* note 119 (discussing concerns about property rights character of individual transferable quotas).

For a discussion of the split among environmentalists over individual transferable quotas, see WEBER, *supra* note 89, at 190 (discussing how MFCN, which was comprised primarily of conservationists in 1990s, “was so split over” individual transferable quotas in mid-1990s that organization “remained silent” in debate before 1996 reauthorization of Magnuson-Stevens Act “although some of its members did not”). Compare, for example, the testimony of two Network-member organizations on individual transferable quotas: *Transferable Quotas Under the Magnuson Act: Hearings Before the Subcomm. on Fisheries Mgmt. of House Comm. on Merchant Marine and Fisheries*, 103rd Cong. 119–21 (1994) (statement of Greenpeace) (opposing individual transferable quotas on environmental and other grounds), with *id.* at 431–36 (statements of Rodney M. Fujita, Ph.D. and D. Douglas Hopkins, J.D., Environmental Defense Fund) (supporting individual transferable quotas). For more recent Environmental Defense testimony supportive of individual transferable quotas, see *Individual Fishing Quotas (IFQs): Hearings Before the Subcomm. on Fisheries Conservation, Wildlife and Oceans of House Comm. on Resources*, 107th Cong. 69–75 (2002) (statement of Peter M. Emerson, Senior Economist, Environmental Defense). For the current views of the MFCN on individual transferable quotas, see Press Release, Marine Fish Conservation Network, Coalition Launches New Initiative to Promote Standards for Individual Fishing Quotas to Protect Family Fishermen and Marine Ecosystems (May 4, 2004), available at [http://www.conservefish.org/site/mediacenter/pressreleases/ifqcampaignnewsrelease\\_national.pdf](http://www.conservefish.org/site/mediacenter/pressreleases/ifqcampaignnewsrelease_national.pdf) (noting that “coalition of . . . commercial and recreational fishing groups, environmental organizations, aquariums, and marine scientists” is urging Congress to adopt “national standards” for individual fishing quotas to “protect family fishermen and the environment”).

<sup>111</sup> See Wilen, *supra* note 89, at 317 (noting that “many of the anticipated problems” with individual transferable quotas “either have not materialized or have been dealt with in program design”); Jim O’Malley & Dick Allen, *ITQ Debate: Discards, High-Grading Dilemma*, FisheryConservation.com (identifying and addressing concerns about discarding and high-grading), at <http://www.lobsterconservation.com/highgrading> (last visited Jan. 28, 2005).



FROM FUR TO FISH:  
RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
**Draft: Do not Cite or Quote w/o Author's Permission**

concerns of interest groups such as small-scale fishers who fear they will lose out under individual transferable quotas may be addressed through side payments that take the form of additional quota shares in the initial allocation or limits on the subsequent transferability of quota shares to temper the tendency toward consolidation. Devoting sufficient resources to enforcement can avoid the deleterious consequences some environmentalists fear. However, as I discuss below, distributional conflicts about which segments of the fishing industry will benefit from individual transferable quotas have been an especially significant obstacle to their widespread use in U.S. coastal fisheries.<sup>112</sup> The concerns that environmentalists have voiced about individual transferable quotas have been less of an impediment, probably for several reasons. Major environmental groups only became actively involved in fisheries politics in the 1990s, and many environmentalists have focused more on restoring depleted fish populations than on the allocation of access to fisheries.<sup>113</sup> Moreover, as mentioned above, there are environmentalists who support individual transferable quotas.<sup>114</sup>

The remainder of Part II analyzes the pattern of the introduction of individual transferable quotas in U.S. federal waters as a case study of the adequacy of Demsetzian accounts of the origins of private property. The introduction of individual transferable quotas is a particularly useful test of those accounts for two primary reasons.<sup>115</sup>

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<sup>112</sup> See *infra* Part II.C.2.a.

<sup>113</sup> On the relatively recent role of environmental groups in fisheries politics, see WEBER, *supra* note 89, at xxv, 173–95 (discussing growing role of environmentalists in fisheries after collapse of New England groundfish fishery); Beth Daley & Gareth Cook, *Sea Change: The New England Fishing Crisis*, BOSTON GLOBE, Oct. 28, 2003, at A1 (chronicling role of environmentalists in fisheries); Dexter Van Zile, *Green Machine*, NAT'L FISHERMAN, Mar. 2004, at 18 (describing role of Pew Charitable Trusts in fisheries policy).

<sup>114</sup> See *supra* note 109 and accompanying text. Notably, Environmental Defense is working to introduce individual transferable quotas in several U.S. fisheries. See *A Better Future for America's Fisheries*, SOLUTIONS, Mar.–Apr. 2004, at 4–5, at [http://www.environmentaldefense.org/documents/3568\\_Solutions\\_0304.pdf](http://www.environmentaldefense.org/documents/3568_Solutions_0304.pdf) (describing Environmental Defense's work with regional councils and fishermen to promote conservation).

<sup>115</sup> For an explicit suggestion in the scholarship on individual transferable quotas that Demsetz's theory of the evolution of property rights explains their emergence, see Pearse, *supra* note 92, at 82 (suggesting that "[r]ecent developments in fishing rights are consistent with" Demsetz's theory, although "property [in fisheries] is being built on governmental regulatory mechanisms rather than emerging on its own").

Indeed, there is literature on the evolution (or non-evolution) of property rights in specific fisheries or groups of fisheries. See LIBECAP, *supra* note 10, at 73–92 (evaluating evolution of property rights in Gulf of Mexico fisheries). See generally Rognvaldur Hannesson, *The Political*

FROM FUR TO FISH:  
 RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
 80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
**Draft: Do not Cite or Quote w/o Author's Permission**

First, the setting for the emergence of tradable rights in fisheries is similar to those in the standard accounts of the evolution of property rights. Since Demsetz's seminal article, much of the scholarship about the evolution of private property has focused on the emergence of private rights in organized societies, not the state of nature.<sup>116</sup> Individual transferable quotas fit this paradigm because they involve creating private rights in publicly owned resources.

Second, individual transferable quotas are a property rights-based approach for managing resources in two respects. One, individual transferable quotas share the same purpose as other more familiar forms of private property. Just as Demsetz and other economists champion private property as a mechanism for improving efficiency,<sup>117</sup> so the thrust of the arguments for individual transferable quotas is that they will improve economic returns from fisheries by reducing overcapacity and improving product quality and stewardship. Two, individual transferable quotas also share many of the formal characteristics commonly assumed to inhere in private property,<sup>118</sup> even though there is considerable reluctance to

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*Economy of ITQs*, in SYMPOSIUM ON GLOBAL TRENDS; FISHERIES MANAGEMENT 237 (1994) (discussing political and economic circumstances that affect implementation of individual transferable quotas); Edwards, *Rent-Seeking*, *supra* note 69 (evaluating evolution of property rights in Atlantic sea scallops in U.S.); Johnson & Libecap, *supra* note 31 (evaluating evolution of property rights, focusing primarily on Texas shrimp); Repetto, *supra* note 76 (discussing evolution of property rights in Atlantic sea scallops in U.S. and Canada); Alcock, *supra* note 28 (explaining evolution of property rights in fisheries in North Atlantic, in particular Iceland, Norway, Atlantic Canada and New England).

<sup>116</sup> See *supra* note 22 (noting that Demsetz suggests that his hypothesis extends to explaining evolution of property rights in Western societies); *supra* note 31 (citing evolution of property scholarship).

<sup>117</sup> See generally Demsetz, *Toward*, *supra* note 1; see also JEREMY WALDRON, *THE RIGHT TO PRIVATE PROPERTY* 5–12 (1988) (suggesting that Demsetz's argument for property takes up utilitarian argument for private property that was originally advanced by Aristotle).

<sup>118</sup> See, e.g., MARINE FISH CONSERVATION NETWORK, *supra* note 106, at 4 (“In fisheries management, IFQs are commonly referred to as ‘rights-based management’ regimes because they assign exclusive access to a portion of the overall catch to an individual fisherman or business.”); Heller, *supra* note 33, at 1196 (noting that regulations such as those creating individual fishing quotas that avoid tragedy of commons “are seen as creating rather than destroying private property”); Raymond, *supra* note 68, at 21 (describing individual transferable quotas as instance of licensed property, and indicating that “[m]ost ITQ programs create a right that is fully exclusive and extremely secure—granted in perpetuity to current users, albeit only as a percentage of a floating total allowable catch figure”); *id.* at 14–18 (explaining concept of licensed property as property that includes “many of the traditional rights of ownership” but that is “subject to future cancellation or modification by the government”); Scheiber & Carr, *supra* note 84, at 16 (“The ITQ idea involves the creation of property rights in the form of issuing

FROM FUR TO FISH:  
RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
**Draft: Do not Cite or Quote w/o Author's Permission**

characterize them as such for fear of attracting takings liability should it become necessary to reduce the value of the rights.<sup>119</sup> Notably, quota shares are individual allotments that are exclusive, durable, and alienable.<sup>120</sup> Indeed, there is even a registry of individual transferable quotas for recording security interests against them, reminiscent of the registries of traditional property rights in land.<sup>121</sup>

As a prelude to analyzing the pattern of tradable rights formation in U.S. coastal fisheries, it is necessary to examine the elements of that pattern. The next Section briefly outlines when and where tradable rights have been adopted in U.S. coastal fisheries under federal jurisdiction.

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licenses to fish for a specified quantity of the species in question.”); Scott, *supra* note 94, at 26–27 (analyzing property rights characteristics of individual transferable quotas); *see also* Foss v. Nat’l Marine Fisheries Serv., 161 F.3d 584, 588 (9th Cir. 1998) (claiming that “[t]here can be no doubt that the IFQ permit is property” on basis that “it is subject to sale, transfer, lease, inheritance, and division as marital property in a dissolution,” in holding that individual fishing quota permit created due process property interest). *But see* Seth Macinko & Daniel W. Bromley, *Property and Fisheries For the Twenty-First Century: Seeking Coherence From Legal and Economic Doctrine*, 28 VT. L. REV. 623, 638–43 (2004) (rejecting holding in *Foss*, and referring to contrary precedents about grazing permits).

<sup>119</sup> See 16 U.S.C. § 1853(d)(2)(A) (2000) (individual fishing quotas may be terminated or limited without compensation); § 1853(d)(3) (2000) (specifying that individual fishing quotas are permits, may be revoked or limited, and do not confer right of compensation if revoked or limited); *Sea Watch Int’l v. Mosbacher*, 762 F.Supp. 370, 375–76 (D.D.C. 1991) (holding that individual transferable quotas do not create property interests); U.S. COMM’N ON OCEAN POLICY, *supra* note 37, at 234 (arguing that individual transferable quotas should be called “dedicated access privileges,” partly because this term “highlights the fact that fishing is a privilege, not a right”).

Some environmentalists are particularly reluctant to accept the characterization of individual transferable quotas as property because they oppose the notion of privatizing public resources. *See, e.g.*, MARINE FISH CONSERVATION NETWORK, *supra* note 106, at 4–5, 13 (arguing that existing legislative provisions should be strengthened to further clarify that individual fishing quotas are not property rights); SETH MACINKO & DANIEL W. BROMLEY, WHO OWNS AMERICA’S FISHERIES? iv (Pew Science Series on Conservation and the Environment) (arguing that individual fishing quotas do not constitute property rights but rather “a tradable opportunity to capture a share of the income stream arising from a valuable asset that is owned by all U.S. citizens”).

This Article’s description of individual transferable quotas as property rights is not intended to suggest that tradable rights are property rights for takings purposes.

<sup>120</sup> *See* sources cited *supra* note 119, especially Scott, *supra* note 94, at 26–27 (analyzing property rights characteristics of individual transferable quotas). *But see* U.S. GEN. ACCOUNTING OFFICE, *supra* note 97, at 9–11 (referring to variety of restraints on alienability).

<sup>121</sup> U.S. GEN. ACCOUNTING OFFICE, *supra* note 97, at 14 (noting that NMFS’s Alaska Region “maintains a voluntary registry where creditors, such as private banks, the state of Alaska, and private lenders can record liens against quota shares.”).

FROM FUR TO FISH:  
 RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
 80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
**Draft: Do not Cite or Quote w/o Author's Permission**

*B. Prevalence of Tradable Rights in U.S. Federal Coastal Fisheries*

The scope for establishing tradable rights in fisheries broadened considerably when the U.S. extended national jurisdiction out to 200 miles in 1976 and the competing claims of fishers from other nations were phased out of American waters.<sup>122</sup> Before 1976, the United States controlled too few fisheries to allocate and enforce a limited number of rights to harvest many fish.<sup>123</sup> The extension brought fisheries between three and 200 miles from U.S. shores under federal jurisdiction, while fisheries within three miles from the shore remained under state jurisdiction.<sup>124</sup>

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<sup>122</sup> David D. Caron, *International Sanctions, Ocean Management, and the Law of the Sea: A Study of Denial of Access to Fisheries*, 16 *ECOLOGY L.Q.* 311, 314 (1989) (estimating that seventy-five to eighty percent of world commercial fisheries are within “200-mile zones”). After jurisdiction was extended from twelve to 200 miles in 1976, harvesting by other nations’ fishers was limited initially and then completely eliminated from the U.S. EEZ by the late 1980s. Scheiber & Carr, *supra* note 84, at 49.

<sup>123</sup> See ROSS D. ECKERT, *THE ENCLOSURE OF OCEAN RESOURCES* 124–25 (1979) (discussing obstacles to protecting fish populations before extension of national jurisdiction in 1976). In the 1970s, economists advocated extending national jurisdiction over fisheries partly to facilitate the introduction of private property rights. *Id.* at 16, 120, 147 (suggesting that private rights may be more likely to emerge if authority over fisheries were assigned to coastal states, but noting political pressures in these states opposing stringent regulation); Donald McRae & Gordon Munro, *Coastal State “Rights” Within the 200-Mile Exclusive Economic Zone*, in *RIGHTS BASED FISHING* 97, 98 (Philip A. Neher et al. eds., 1989) (noting that economists advocated extending national jurisdiction “to mitigate . . . the common property problem associated with international fisheries”).

<sup>124</sup> Texas and Florida regulate Gulf Coast coastal fisheries out to nine miles, rather than three. 43 U.S.C.A. §§ 1301(a)(3)(b), 1312 n.12 (West Supp. 2000); Sarah Bittleman, *Toward More Cooperative Fisheries Management: Updating State and Federal Jurisdictional Issues*, 9 *TULANE ENVTL. L.J.* 349, 357 & n.30 (1996) (citing §§ 1301–1315 (1988)).

In 2002, fish caught between three and 200 miles from the shore represented an estimated fifty-one percent of the value of commercial U.S. fish landings, and sixty-one percent of the volume. Fish caught in state waters (from zero to three miles from the shore) accounted for the remainder of the value and the volume of the U.S. commercial catch. See NAT’L MARINE FISHERIES SERV., *FISHERIES OF THE UNITED STATES 2002*, at 13 (2003) (estimating volume and value of fish in various geographical areas).

Under the Magnuson-Stevens Act, the federal government, in theory, could regulate any fisheries between three and 200 miles from the shore (except for Texas and the Gulf Coast of Florida). See 16 U.S.C. § 1852(a)(1) (2000) (identifying grants of authority to regional fishery management councils as including area seaward of constituent states of councils); see also § 1856 (2000) (providing for state jurisdiction). In practice, however, not every fish caught in federal waters is managed solely by federal regulators. Fish may not be regulated at all, and if they are, they could be taken under exclusively federal regulation, a combination of federal and state regulation, or only under state regulation. E-Mail from an employee of the Fisheries Statistics Division, National Marine Fisheries Service, to Katrina M. Wyman, Assistant Professor, New

FROM FUR TO FISH:  
RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
**Draft: Do not Cite or Quote w/o Author's Permission**

Currently, there is no comprehensive published source of information about the extent to which individual transferable quotas and analogous instruments have been established in U.S. coastal fisheries in federal (or state) waters.<sup>125</sup> To remedy this gap, in 2002 and 2003, I reviewed academic literature and government documents, and contacted fisheries regulators in the National Marine Fisheries Service (NMFS),<sup>126</sup> the eight federal regional fishery management councils, and coastal state and territorial marine fisheries agencies. My objective was to determine the prevalence of individual transferable quotas and analogous instruments<sup>127</sup> in coastal fisheries under federal jurisdiction.<sup>128</sup> I gathered information

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York University School of Law (Jan. 13, 2004, 17:42 EST) (name withheld to protect confidentiality) (on file with the *New York University Law Review*) (referring to various permutations of regulation of fish caught between three and 200 miles from shore).

<sup>125</sup> The closest source I have found is COMM. TO REVIEW INDIVIDUAL FISHING QUOTAS, *supra* note 92. It includes case studies of the use of individual transferable quotas and analogous instruments in the U.S. and elsewhere, but does not attempt to offer a comprehensive list of the fisheries in which they have been implemented in the United States.

<sup>126</sup> While this Article refers to the federal fisheries agency as NMFS, the agency recently has begun referring to itself as NOAA Fisheries, as a way of identifying itself as a part of the National Oceanic and Atmospheric Administration (NOAA). E-mail from an employee of the Public Affairs Office, NOAA Fisheries, to Katrina M. Wyman, Assistant Professor of Law, New York University School of Law (Dec. 14, 2004, 11:56 EST) (name withheld to protect confidentiality) (on file with the *New York University Law Review*).

<sup>127</sup> For the purposes of this Article, a regulatory instrument qualifies as an individual transferable quota or similar program if the instrument (1) is premised on the existence of a total allowable catch for the species covered; (2) assigns a share of the total allowable catch to a sector defined by the species harvested, by harvesting gear and/or by geography; (3) divides up the rights to the total allowable catch for the defined sector among individual fishers or firms; and (4) permits at least a degree of trading among fishers in the sector in the rights. The ability to trade exists in the rights when (1) rights may be sold permanently, independent of the license to which they are attached; (2) rights may be sold temporarily (or leased) for the season, independent of the license to which they are attached; or (3) licenses may be stacked for at least the fishing season in a way that permits the fleet to consolidate harvesting of individual quotas on a smaller number of vessels.

Harvesting cooperatives are analogous to individual transferable quotas if (1) the cooperatives cover a species regulated by a total allowable catch; (2) the cooperatives are assigned by regulators a share of the total allowable catch for the species; (3) the cooperatives allocate rights among members to the catch of the species; (4) the cooperatives are structured to permit review of the allocation of the catch (in a way that resembles trading rights in an individual transferable quota program); and (5) the cooperatives were established for purposes similar to the purposes that motivate the establishment of individual transferable quotas, such as reducing overcapitalization.

<sup>128</sup> For the purposes of this Article, a tradable rights scheme applies to a fishery under federal jurisdiction if (1) the scheme covers fish that are taken entirely or partially within federal waters (between three and 200 miles from the shore); and (2) the fishery is regulated by a federal fishery management council, by the Secretary of Commerce directly, or by a federal council in

FROM FUR TO FISH:  
 RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
 80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
**Draft: Do not Cite or Quote w/o Author's Permission**

about both individual transferable quotas and analogous instruments established by government regulation, and analogous instruments in which segments of the fishing industry allocate a total allowable catch set by regulators among their members. I included analogous instruments devised by industry because of the role of government in contemporary fisheries: Even when the catch is nominally allocated by private industry agreements, these agreements only arise against the backdrop of government regulations limiting the overall catch and the number of participants in a fishery.<sup>129</sup>

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combination with state regulatory agencies or interstate fisheries commissions. Tradable rights schemes in fisheries exclusively under state jurisdiction are not counted. *See supra* note 124 (discussing various permutations of regulation in U.S. fisheries).

This Article focuses on federal fisheries for three reasons. First, while the extension of national jurisdiction primarily was intended to Americanize important fisheries along U.S. shores, another theme was the extension of federal regulation of coastal fisheries to introduce rational management. Before the extension of national jurisdiction, federal officials were critical of state regulation of coastal fisheries, and these officials perceived the extension of national jurisdiction as an opportunity to improve upon state management. Against this historical backdrop, the federal government might have been expected to be more aggressive in introducing experimental approaches such as tradable rights.

Second, federal fisheries regulators have had ample authority to introduce individual transferable quotas and analogous instruments even though the states have retained jurisdiction over coastal fisheries within the first three miles of shore. As noted earlier, a considerable share of fish are taken in federal waters. *See supra* note 124.

Third, the states have been even less inclined to experiment with individual transferable quotas than federal regulators, but there may be distinct factors accounting for the states' record concerning tradable rights. In contacting federal, state, and territorial fisheries regulators, I also asked for information about the use of individual transferable quotas or analogous instruments in state-managed fisheries. I learned of only four individual-transferable or equivalent programs established by coastal states or under their jurisdiction in marine waters: a cooperative for herring roe in Yaquina Bay, Oregon; an individual transferable quota program for Atlantic surfclams off New Jersey; and individual transferable quotas for striped bass implemented by Delaware and Virginia. Of these four fisheries, only the Delaware and Virginia striped bass fisheries extend to any degree into federal waters, and in 2002, only a very small amount of the striped bass landed in these states was estimated to have been taken in federal waters. E-Mail from an employee of the Fisheries Statistics Division, National Marine Fisheries Service, to Katrina M. Wyman, Assistant Professor, New York University School of Law (Jan. 21, 2004, 14:04 EST) (name withheld to protect confidentiality) (on file with the *New York University Law Review*). State regulators may be less inclined to experiment with tradable rights than federal regulators because the states may have less institutional capacity, control different types of species, respond to different interest groups, and operate under different decisionmaking structures. Given these possibilities, a comparison of the federal and state records in implementing individual transferable quotas is best left to another article.

<sup>129</sup> *See supra* note 127 (defining individual transferable quotas and analogous instruments as used in this Article). Moreover, fishing industry participants that allocate catches in private versions of individual transferable quotas obtain antitrust approval of their agreements. *See* Joseph M. Sullivan, *Harvesting Cooperatives and U.S. Antitrust Law: Recent Developments and*

FROM FUR TO FISH:  
RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
**Draft: Do not Cite or Quote w/o Author's Permission**

As of 2002, individual transferable quotas were used in few federal coastal fisheries. Only six federally regulated coastal fisheries were harvested under individual transferable quotas. Broadening the net, five other federally regulated coastal fisheries were caught under analogous instruments that share the same purpose and key features of individual transferable quotas. Table 1 lists the eleven fisheries taken under individual transferable quotas and analogous instruments as of 2002, and indicates the years in which these fisheries shifted to tradable rights.<sup>130</sup>

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Implications, Presentation at the International Institute of Fisheries Economics and Trade Conference 2–3, 5, 7 (July 10–14, 2000) (describing contacts with antitrust authorities on behalf of fishing industry clients negotiating cooperatives), at <http://oregonstate.edu/dept/IIFET/2000/papers/sullivan.pdf>. In addition, fisheries regulators are aware of these agreements when they arise, and the silence of these regulators arguably may be interpreted as approval.

<sup>130</sup> I have no reason to believe that the number of federally managed coastal fisheries with tradable rights increased in 2003 or in the first ten months of 2004. However, additional individual transferable quota programs were under consideration in the fall of 2004.

The North Pacific Fishery Management Council has recommended a series of changes to Alaska crab fisheries that would grant harvesters and processors individual quotas. The plan is controversial because it is the first time U.S. processors would be awarded shares explicitly for processing activity. In addition, the North Pacific Council is working on a rationalization plan for the Gulf of Alaska groundfish fishery. Ted Stevens, a republican senator from Alaska, included a provision in a 2004 omnibus appropriations bill that requires the Secretary of Commerce to “approve and hereafter implement by regulation” the North Pacific Council’s crab rationalization program by January 1, 2005. H.R. 2673, 108th Cong. § 801 (2004). The provision also requires the Secretary of Commerce “in consultation with the North Pacific Fisheries Management Council,” to establish a pilot program of individual and processor quotas for several fisheries in the Gulf of Alaska. § 802 (2004). For an indication of the controversy that the 2004 appropriations provision generated, see generally *Seafood Processor Quotas: Hearings Before the Senate Comm. on Commerce, Science, and Transportation*, 108<sup>th</sup> Cong. (2004) (testimony of Sen. John McCain, Chairman, Senate Comm. on Commerce, Science, and Transportation) (referring to creation of quotas as controversial legislation enacted without adequate deliberation); Liz Ruskin, *Stevens Defends Fish Rider Amid Widespread Protests*, ANCHORAGE DAILY NEWS, Nov. 14, 2003, at A1 (discussing protests); Letter from Sen. John S. McCain, Chairman, Senate Committee on Commerce, Science, and Transportation, and Sen. Olympia J. Snowe, Chairman, Subcommittee on Oceans, Fisheries, and Coast Guard, to Sen. Ted Stevens, Chairman, Committee on Appropriations (Sept. 5, 2003) (on file with the *New York University Law Review*) (requesting that Appropriations Committee discontinue efforts to introduce quotas in light of opposition by Department of Justice and Senate Commerce Committee); Press Release, Office of Sen. John McCain, Statement of Senator John McCain on the FY ‘04 Omnibus (Jan. 22, 2004), available at [http://mccain.senate.gov/index.cfm?fuseaction=Newscenter.ViewPork&Content\\_id=1220](http://mccain.senate.gov/index.cfm?fuseaction=Newscenter.ViewPork&Content_id=1220) (noting opposition to quota provisions among newspapers and fishers and arguing that additional scrutiny is necessary).

The Pacific Fishery Management Council is in the initial stages of preparing a plan for individual transferable quotas in the groundfish trawl fishery off Washington, Oregon, and California. Pac. Fishery Mgmt. Council, Individual Fishing Quotas (IFQs), at

FROM FUR TO FISH:  
 RECONSIDERING THE EVOLUTION OF PRIVATE PROPERTY  
 80 *N.Y.U. Law Review* \_\_ (forthcoming April 2005)  
**Draft: Do not Cite or Quote w/o Author's Permission**

TABLE 1: INDIVIDUAL TRANSFERABLE QUOTAS AND ANALOGOUS  
 INSTRUMENTS IN FEDERAL FISHERIES

Fishery	Year Tradable Rights Were Implemented
Atlantic bluefin tuna individual transferable quotas (purse seine fleet only)	1983 <sup>131</sup>
Atlantic ocean quahog individual transferable quotas	1990 <sup>132</sup>
Atlantic surfclam individual transferable quotas	1990 <sup>133</sup>
South Atlantic wreckfish individual transferable quotas	1992 <sup>134</sup>

<http://www.pcouncil.org/groundfish/gfifq.html> (last visited Jan. 28, 2005).

In the southeast, the Gulf of Mexico Council currently is taking steps toward establishing individual transferable quotas in the red snapper fishery. See S.E. REG'L OFFICE, *supra* note 37; GULF OF MEX. FISHERY MGMT. COUNCIL, IFQ PROFILE: AN OPTIONS PAPER FOR THE PROBLEMS IDENTIFIED IN THE GULF OF MEXICO RED SNAPPER FISHERY (2004), at <http://www.gulfcouncil.org/downloads/itqoptionspaper4a.pdf>; Cain Burdeau, *Gulf Fishermen Criticize Red Snapper Plan—Fear Quotas Would End Up Favoring Large Vessels, Seafood Corporations*, COM. APPEAL, Aug. 16, 2004, at DS4 (reporting on reactions to proposal for individual transferable quotas for red snapper).

The New England Council is contemplating allowing sector-based allocations in the herring fishery, which could set the stage for the creation of individual transferable quotas. See NEW ENGLAND FISHERY MGMT. COUNCIL, AMENDMENT 1 TO THE HERRING FISHERY MANAGEMENT PLAN (FMP): SUMMARY OF MEASURES UNDER CONSIDERATION 52–59 (2004), at [http://www.nefmc.org/herring/a1\\_final\\_summary\\_of\\_alts1204.pdf](http://www.nefmc.org/herring/a1_final_summary_of_alts1204.pdf); Press Release, Environmental Defense, New England Fishery Management Council Votes for Herring Cooperatives: Environmental Defense Calls Vote A Major Step Forward in Improving Herring Fishery (Mar. 23, 2004), available at <http://www.environmentaldefense.org/pressrelease.cfm?ContentID=3604>; see also *infra* note 151 (discussing changes in management of New England groundfish fishery that ultimately may lead to adoption of individual transferable quotas or analogous instruments, including recent formation of sector in Northeast groundfish fishery).

<sup>131</sup> Implementation of Recommendations of the International Commission for the Conservation of Atlantic Tunas, 48 Fed. Reg. 27,745, 27,753 (June 17, 1983) (to be codified at 50 C.F.R. pt. 285).

<sup>132</sup> U.S. GEN. ACCOUNTING OFFICE, *supra* note 101, at 36.

<sup>133</sup> *Id.* at 36.

<sup>134</sup> *Id.* at 35.













































































































































































