THE OCEANS

Whales for Margarine: Commodification and Neoliberal Nature in the Antarctic

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On January 1, 1953, twenty-eight gravid Blue whales measuring from seventy-three feet to ninety-three feet were killed in the Antarctic; their unborn calves were between four and thirteen feet long and divided evenly between the sexes. In the international season opened that day, whalers reported statistics for 783 Blue whale fetuses. Similar data was compiled for Fin, Sei and Humpback whales.[1] The data was reported to the Bureau of Whaling Statistics in Oslo and published in *International Whaling Statistics*. After scientific formalities, the whales were rendered to oil. Each adult Blue whale represented one Blue Whale Unit to the International Whaling Commission. Developed for production control by an industrial cartel in the 1930s, the Blue Whale Unit was later adopted as the Commission's principal regulatory instrument. Casual observers recognized the consequences: the whalers' behavior was ruinous. This ruthless exploitation continued unabated, and the grim annual statistics did not correct investment decisions until the industry collapsed after 1965, exhausting the stocks of whales discovered in the Antarctic only 60 years earlier.

The collapse of whaling is more than a historical footnote; it is a somber warning regarding the subjugation of nature to capitalist rationality. The political project of neoliberalism now claims isochronic command of the Earth's natural resources and production processes, yet the supposed hegemony of neoliberalism is being challenged in numerous ways. And although neoliberalism is often indicted as a political, economic and environmental debacle, the "connections between neoliberalism, environmental change and environmental politics remain under-explored in critical scholarship."[2] As James O'Connor noted in the inaugural issue of *Capitalism Nature Socialism*, in this respect the work of Karl Polanyi remains "a shining light in a heaven filled with dying stars and black holes of bourgeois naturalism, neo-malthusianism, Club of Rome technocraticism, romantic deep ecologism and United Nations one-worldism."[3]

The Intergovernmental Panel on Climate Change informed global debate on climate change and the politics of the December 2007 Bali conference; heightened global awareness was decisive in the compromise achieved in the twelfth hour. In time, the Millennium Assessment may be as influential in mapping a response to the ecological consequences of globalization. Comprising 1,360 scientists and commissioned by the United Nations, the report presents stark conclusions. Despite some optimistic indicators, the overwhelming fact is that virtually all important ecological metrics are in decline. Thoughtful observers across the political spectrum are alarmed. John Grey notes for example, that as a result of the epochal evolution of capitalism, "we stand not on the brink of the era of plenty that free-

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[1] Statistics compiled from *International Whaling Statistics,* 30, 1953.
[2] James McCarthy and Scott Prudham, "Neoliberal Nature and the Nature of Neoliberalism," *Geoforum*, Vol. 35, No. 3, May 2004, pp. 275-83.
[3] James O'Connor, "Capitalism, Nature, Socialism: A Theoretical Introduction," *Capitalism Nature Socialism*, No. 1, Fall, 1988, pp. 11-37.

marketeers project, but a tragic epoch, in which market forces and shrinking natural resources drag sovereign states into ever more dangerous rivalries."[4] Similarly, Murray Bookchin concludes:

> We are clearly beleaguered by an ecological crisis of monumental proportions—a crisis that visibly stems from the ruthless exploitation and pollution of the planet. We rightly attribute the social sources of this crisis to a competitive marketplace spirit that reduces the entire world of life, including humanity, to merchandisable objects, to mere commodities…[5]

These observations from disparate thinkers are infused with analytic insights provided by Karl Polanyi. *The Great Transformation* documents the historic introduction of the machine and its societal and ecological effects. As Polanyi notes, the "gearing of markets into a self-regulating system of tremendous power was not the result of any inherent tendency of markets towards excrescence, but rather the effect of highly artificial stimulants administered to the body social in order to meet a situation which was created by the no less artificial phenomena of the machine."[6]

The machine, as the technical instrument of capital's expansive power, profoundly altered human ecology, enabling great advances in the struggle against the elements and the whims of nature. It abruptly and irreversibly transformed the ancient relationship between man and nature:

> What we call land is an element of nature inextricably interwoven with man's institutions. To isolate it and form a market out of it was perhaps the weirdest of all undertakings of our ancestors.[7]

Polanyi maintains that prior to the 19th century, markets were merely adjuncts of society and consciously regulated for the provision of non-local goods for the community. But the machine compelled the imposition of market economy upon every facet of society, leading to a profound reversal: social relations are now disembedded from their traditional position and are instead submerged in the economy. In Polanyi's analysis, capitalism was not innate in society, but rather a non-viable form of social life. The advent of this "stark utopia" set European civilization along a path fraught with peril, and the political and ecological disasters of the past hundred years are manifestations of the collapse of that civilization.

The "great transformation" of the title, as Polanyi notes, results from the fact that

> machine production in a commercial society involves, in effect, no less a transformation than the natural and human substance of societies into commodities. The conclusion, though weird, is inevitable... the dislocation caused by such devices must disjoint man's relationships and threaten his natural habitat with annihilation."[8]

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[4] John Gray, *False Dawn: The Delusions of Global Capitalism* (New York: New Press, 1998), p. 5.
[5] Murray Bookchin, "What is Social Ecology?," in Peter List (ed.), *Radical Environmentalism: Philosophy and Tactics* (Belmont, CA: Wadsworth Publishing Co., 1993), p. 93.
[6] Karl Polanyi, *The Great Transformation: The Political and Economic Origins of Our Time* (Boston: Beacon Press, 1957), p. 57.
[7] *Ibid.*, p. 178.
[8] *Ibid.*, p. 42.

The triumph of the market demanded that society be subordinated to its own requirements; a market economy must comprise all the elements of industry, including land, labor and money, as factors of production. That is, it must transform them into commodities. Polanyi argues, however, that commodifying such things denatures them fundamentally. The postulate that anything that can be bought and sold must have been produced for sale is emphatically untrue in regard to these cases:

> Labor is only another word for a human activity which goes with life itself, which in turn is not produced for sale but for entirely different reasons...land is only another name for nature, which is not produced by man; actual money, finally, is a mere token of purchasing power, which as a rule is not produced at all, but comes into being through the mechanism of banking or state finance. None of them is produced for sale. The commodity description of labor, land and money is entirely fictitious.[9]

This contradicted the very substance of society. It surrendered "the fate of man and nature to the play of an automaton running in its own grooves and governed by its own laws."[10] This initiated a chain-reaction, the endpoint of which was the appearance of the "self-regulating market," itself an artificial construct imposed by active state intervention. The impact was dramatic; as the new machine-based productive organization made its debut, society and nature were diminished to mere accessories to the economy.

This "stark utopia," however, could not endure without extreme consequences for humanity. To allow the self-regulating market to direct the fate of humanity would ultimately result in the demolition of society and the devastation of nature. Confronted by this prospect, society reacted in self-defense. This "counter-movement" was of course at odds with the logic of the self-regulating market itself. Nevertheless, as David Owen and others anticipated, if left to its own devices, the market economy generated great evils. Accordingly, there was a spontaneous societal response, the result being another paradox at the heart of the transformation; laissez-faire was planned, while planning was not. Furthermore, as Polanyi observes, "not human beings and natural resources only, but also the organization of capitalistic production itself had to be sheltered from the devastating effects of a self-regulating market."[11] This clashing "double-movement" between laissez-faire logic and the reactive protections undertaken by society defined the historic contours of 19th century Europe. While these measures themselves endangered humanity in other ways, the counter-movement demonstrated that society was not utterly prostrate to the will of the market.

Neoliberalism

The parallels between many of these 19th century dynamics and contemporary neoliberal logic are compelling. Neoliberalism is best understood as a politically constructed order, evolving at various speeds according to time and place; it did not spring, full-blown, into existence in the late 1970s but was the response to a multiply-caused accumulation crisis. This was too complex to be subsumed into a simple Polanyian analysis. Nor was there

[9] *Ibid.*
[10] *Ibid.*
[11] *Ibid.*, p. 132.

a neatly demarcated transition: "[N]eoliberalism gained hegemonic status through a multisided overlapping sequence of ideological and lived confrontations that had deeply political origins and implications."[12] The etiology of neoliberalism may be best explained as the reaction to the macroeconomic policies resulting from the collapse of the 19th century international order.

The Great Depression and World War II provoked an array of responses to the failure of 19th century liberalism. Internationally, finance and trade were reconfigured through the Bretton Woods institutions, buttressed by American hegemony. In the United States, the New Deal and its legacy invoked a new relationship between state and economy, and in Western Europe a range of new state forms, including Christian democratic, social democratic, and other varietals, flourished under American military guardianship. Regardless of their exact dimensions, these new forms of political economy, at both the international and domestic level, reflected Keynesian logic in the belief that state intervention in monetary policy, along with state-directed industrial and social programs intended to remedy market failures were essential in avoiding repetition of past calamities. Invoking Polanyi, John Ruggie calls these new forms of political-economic organization "embedded liberalism" where the market is enmeshed by social and political governors. Here, the "balance between 'authority' and 'market' fundamentally transformed state-society relations, by redefining the legitimate social purposes in pursuit of which state power was expected to be employed in the domestic economy."[13]

Embedded liberalism and the implicit class compromise between capital and labor which sustained it delivered impressive growth rates and prosperity in the Atlantic economies and also conferred benefits on select, export-oriented economies such as Japan. By the mid-1970s, however, the advanced capitalist world, as Robert Brenner suggests, had "come full circle." The logic that initiated the postwar recovery was unable to sustain itself against deeper contradictions in the capitalist economy, and Keynesianism faltered under the impact of a range of disturbances in the global economy, forcing down profitability and generating instability in financial markets and currency exchange mechanisms.[14]

Critics of Keynesianism immediately indicted state interference in markets, the fruition of organized labor, environmental legislation, and other aspects of the post-war economic order as the root cause of the crisis. The neoliberal response to these threats to capitalist order had a long gestation that in many respects mirrored the development of the Keynesian synthesis. Its genealogy reflects many influences, perhaps the most conspicuous being the theoretical insights of Austrian political philosopher Friedrich von Hayek, which were propagated by the influential Mont Pelerin Society. Neoliberal logic staunchly advocated Adam Smith's "hidden hand" as the only effective guarantor of freedom and prosperity and therefore was markedly opposed to state intervention in monetary policy,

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[12] Patricia Martin, "Mexico's Neoliberal Transition," in Helga Leitner, Jamie Peck and Eric Shepard (eds.), *Contesting Neoliberalism: Urban Frontiers* (New York: The Guilford Press, 2007), p. 58.
[13] John G. Ruggie, *Constructing the World Polity: Essays on International Institutionalization* (New York: Routledge, 1998), p. 67.
[14] Robert Brenner, "The Economics of Global Turbulence: A Special Report on the World Economy, 1950-98," *New Left Review*, 229, May/June 1998.

markets and investments, and the provision of social policy and environmental protection. Neoliberalism therefore seeks to "disembed" the market from society and politics.

The ascendance of neoliberal practice commenced in the mid-1970s and gained considerable momentum after 1980. But its logic was not without precedent. Neoliberals are keenly attuned to the privatization of assets and the development and extension of strict property rights. In the neoliberal universe, the "tragedy of the commons" is averted only through enclosure and state protection of property. There is, additionally, a profound mistrust of democracy and its institutions; as David Harvey notes, this implies a new dilemma, as routes must be constructed to integrate state power with the dynamics of capital accumulation.[15] The relationship between corporate interests and the state becomes paramount, and capital acquires a stronger presence than ever in the formulation of public policy and regulatory regimes that are distinctly biased to the pursuit of profit. All aspects of production must be subject to commodification, and the market is deployed as an appropriate guide for all human activity. The fundamental operational logic is provided by fear and greed, fueling the drive to acquire greater security and more goods. As will be seen, the motivations and actions of Antarctic whalers prefigured neoliberalism by several decades, yet their behavior is disturbingly familiar to any observer of globalization. Despite the vast power and scope of the neoliberal complex, its foundational logic remains a narrow set of economic principles incapable of informing ecological responsibility. In any event, nature—and the great whales in particular—would pay an augmented price under a neoliberal regime and its technology.

Whaling

Whales and their ancestors have been integral to marine ecology for eons; fossil whalebones are found in the Himalayas, which were deposited when the area was submerged under ocean more than 53 million years ago. The relationship between humans and whales is also ancient. Whalebones are found in middens throughout Europe, and indigenous communities have practiced subsistence whaling for millennia. Early whaling was restricted to the Northern Right whale (*Balaena glacialis*) and Bowhead whale (*Balaena mysticetus*). Nineteenth century American whaling targeted the Sperm Whale (*Physeter Macrocephalus*).

While successive generations of whalers exploited these species, the fast, powerful whales of the family *Balaenopteridae* were beyond the grasp of technology and remained immune. That changed after 1860, when Norwegian Sven Foyn revolutionized the industry by building the first steam whale catcher and arming it with cannon-firing articulated explosive harpoons. The harpoon was attached with a strong line to a winch and the accumulator, a set of springs and stops below decks, configured to accommodate the strain of the whale, like a giant fishing reel. Once killed, the animals were inflated to prevent sinking and towed to shore.

Foyn's new technic ensemble appeared in the midst of the Industrial Revolution, which spurred demand for, *inter alia*, edible oils, lubricants, and soap. Fortuitously, the process of hydrogenation arrived just as demand for these commodities accelerated. In 1907 chemist Wilhelm Norman hydrogenated whale oil, converting it into an edible solid fat for

[15] David Harvey, *A Brief History of Neoliberalism* (Oxford: Oxford University Press, 2005), p. 76.

margarine. The new technologies opened a new, industrial era in whaling, which proved calamitous for the species.

By 1900 stocks of whales in the North Atlantic were devastated. Industrialists faced a notable impasse; prices for whale oil were rising, but there was a shortage of raw materials. Unless new avenues for expansion were discovered, whalers would lose significant investment. Whaling operations were established in the Antarctic in 1904. The fertile waters of the Antarctic Convergence are the nursery of the great whales, and whaling firms established shore stations along its periphery.[16] That entrepreneurs carved out an industrial foothold in one of the Earth's most forbidding regions is indicative of the vast wealth they discovered.

Early Antarctic whaling involved staggering inefficiency and waste, and whalers decimated herds around the stations they had established. Many obstacles were resolved with the advent, in 1925, of the pelagic factory ship. The factory ship was an integrated marine slaughterhouse/tanker; after delivery by whale catchers, the carcasses were winched up a stern ramp and disassembled in a rationalized operation. Processed in an array of boilers and separators below decks, large whales were swiftly reduced to oil. Factory ships were the core of the whaling fleet, which also included catchers and auxiliaries that deployed each Antarctic summer.

Table 1: The Expansion of Antarctic Pelagic Whaling: Catch Material and Production Statistics for Selected Years 1924/1925-1939/1940

Year	Total whales	Oil production-barrels	Factory ships	Catchers
1924/25	4,670	290,915	12	41
1925/26	6,394	378,850	14	47
1927/28	10,138	733,912	17	61
1928/29	15,209	1,282,711	25	88
1929/30	26,469	2,298,796	38	167
1930/31	37,465	3,420,410	41	205
1931/32	7,367	686,385	5	33
1932/33	23,331	2,401,879	17	112
1936/37	32,821	2,576,479	30	184
1937/38	44,152	3,250,064	31	244
1938/39	36,681	2,709,281	34	270
1939/40	31,709	2,479,471	28	228

Source: Statistics compiled from *Norwegian Whaling Gazette*, Vol. 49, August 1960, p. 367.

Early pelagic whaling was both lucrative and increasingly lethal. Whereas in 1925 over 10,000 whales were killed, in the 1931 season the expanded fleet slaughtered over 40,000. As

[16] See G.A. Knox, "Antarctic Marine Ecosystems" and Joel Hedgpeth, "Marine Biogeography of the Antarctic Regions," both in M.W. Holdgate (ed.), *Antarctic Ecology* (New York: Academic Press, 1970) and Sayed Z. El-Sayed, "Biology of the Southern Ocean," *Oceanus*, Vol. 18, No. 4, 1975, pp. 40-49.

the largest and most desirable species, blue whales received the brunt of the punishment that season, with over 28,000 blue whales killed in the brief Antarctic summer. The 1931 season was, initially, a bonanza; the demise of more than 40,000 animals produced 3 million barrels of oil. But this boom crested at a point when a variety of political and economic factors coalesced into crisis.

Whaling was cartelized: a handful of Norwegian firms and a few British competitors like Christian Salvesen Ltd. constituted the industry. In 1913 these firms introduced the Whale Oil Pool to control production. The market was monopsonistic; during the 1920s soap and margarine producers consolidated their position, controlling the market for whale oil. By 1927 fierce inter-firm competition produced Unilever Ltd., which became a principle agent directing the fate of the whales.

Early Regulation

For decades it was clear that unregulated whaling would inevitably result in the collapse of populations. As a result, Norway implemented modest regulations for its territorial waters as early as 1880, and burgeoning interest in whales spawned the new science of cetology, which from its inception was intimately associated with the industry. Knowledge of whale behavior could be used to eliminate many uncertainties. Unbiased observers, however, saw a clear pattern of destruction in the wake of the industry, and it was hoped that the new science could provide a basis for regulation. As one writer sympathetic to the plight of the whales noted,

> No one unconnected with the business of whaling can possibly approve of the present methods of unrestricted slaughter…In any remedial measures to be taken, the primary motive must be the prevention of the extinction of any species of whale, the secondary motive being the preservation of whaling as a reasonably productive industry. If at any time or anywhere the interests of the whales and the whalers clash, the former alone must be considered. To acquiesce even tacitly in any laissez-faire policy which will result or even tend to result, in the total extinction of any species of whale is of course, unthinkable.[17]

For the whalers the acceptance of any policy restricting the pursuit of profit was equally unthinkable; attempts to establish international regulation in the 1920s were fruitless. Indeed, record profits in this era provided the incentive for new investment and a dramatic expansion, fueled in part by the development of a hydrogenation method that permitted margarine production from almost 100 percent whale oil, which previously could be used only in conjunction with large quantities of other edible oils.

By 1931 the growing global depression led to structural changes in the whaling industry. Depressed prices and overproduction led Unilever to pursue protective strategies, resulting in legal confrontations with the whalers. In March Unilever requested that no expeditions be dispatched for the 1931-32 season, and the whaling firms agreed in spite of their considerable investment in their specialized ships, which were expensive and had little utility outside whaling. Later that year, 26 countries assembled in Geneva to codify international whaling regulations. The Geneva Convention of 1931 provided the foundation for all future whaling treaties. Although the motivations of the scientists and diplomats may

[17] James Jenkins, *Whales and Modern Whaling* (London: H.F. and G. Witherby, 1932), p. 5.

have been honorable, the industry's political power ensured that the Convention and subsequent efforts at regulation failed to protect the whales.

The diplomacy of the 1930s was mirrored by private discussions of still greater importance. Forward-thinking industrialists like Harold Salvesen recognized the reality of natural limits; if whaling was to endure, the industry needed to practice conservation. As he noted in a 1933 address to the Royal Society,

> No Antarctic expedition can now hope to cover its expenses unless it has a prospect of killing a very large number of blue or fin whales—there will be thousands of these left when it ceases to pay to hunt for them. There is yet no scarcity, but there are many signs of its approach…In my opinion compulsory limitation is desirable and would probably be welcomed by the wiser managers of whaling companies operating in the Antarctic on the condition that the regulations were just and world-wide in scope, that proper provision was made for enforcement and especially that they could not be evaded by a change of flag.[18]

In 1931-32 representatives negotiated a private agreement. Although the work of the "restriction committee" was complicated by intense rivalry and mistrust, it was able to reach an accord in time for the 1932-33 season. That accord provides ample support for Polanyi's contention that unregulated markets lead to catastrophe. The whalers recognized this fact when they resolved for the first time to restrict the scope of operations. The arrangement introduced the Blue Whale Unit, a concept featuring prominently in the fate of the whales. The foundation of the agreement was based on a limited season, increased efficiency to reduce waste and a quota system to restrict competition and discourage new entrants. The goal of the cartel was to raise and stabilize prices by limiting production to two-thirds of 1930-31 production and to spare some whales for future harvesting.

The mechanism was a quota system expressed in Blue Whale Units (BWU). Since the Blue Whale was the largest and most profitable whale to kill, it suffered accordingly, and the whalers, with scientific assistance, devised a system to regulate the death of whales in light of this fact. Under the system, one blue whale would be the equivalent of two fin whales, two-and-a-half humpbacks, or six sei whales. This device had nothing to do with the whales; it simply expressed their utility in oil production.

Each company was allotted a fixed quota of BWU to limit production, and efficiency was encouraged by the stipulation that each BWU produced 110 barrels of oil. The agreement set production at 18,584 BWU for the season, distributed on the basis of performance history and number of factory ships per company. These quotas were transferable. The whales, as Polanyi could have anticipated, became a purchasable commodity, and in 1933 Salvesen purchased the quotas of two expeditions, keeping the factory ships idle and hence supporting prices.

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[18] H.K. Salvesen, "Modern Whaling in the Antarctic," *Journal of the Royal Society of Arts*, Vol 81, March 1933, pp. 408-429. Of course, he was quite provincial in understanding the role of such regulation in protecting his investment. As he noted in the same address, "The days of the suppression of the slave trade are long gone. Nor was it in the power of the existing whaling companies [to keep new entrants out]. If only we could have *stopped others poaching on our preserves!"* P. 420, italics mine.

These strategies achieved the desired goals and were more effective in conservation than international law. Total production for the season was, as intended, held to two-thirds of 1930-31, and approximately 2,500 whales were spared by more efficient reduction. As a result, the price of whale oil increased temporarily, restoring confidence that the venture remained lucrative.

The whalers attempted to repeat this success with increasing difficulty. The root cause was the inability to accomplish the common goal of blocking new entrants. The whalers understood the necessity of cooperation in restricting operations for the common good, but new participants eroded the benefits of inter-firm arrangements. Despite energetic efforts designed to discourage new entrants, during the 1930s the number of whaling nations expanded, and by 1938 expeditions from twelve nations were competing. In the last season before the onset of World War II, the fleet of 34 floating factories and 270 catchers eliminated 36,681 whales.

The war itself profoundly influenced industrial development. The vulnerable fleets ceased operations, and the vessels were refitted for military use. Factory ships and catchers had great utility, and significant tonnage was lost. Regardless of this disruption, both the whalers and governments adhered to regulation, and interest in reconstruction and development of new rules grew as the war turned in favor of the allies. For Norway, this was an opportunity to reinforce the near-monopoly it had shared with the British. The war had destroyed the other fleets, and it was anticipated the victors would bar new entrants to the enterprise and forbid Germany and Japan to resume whaling.

For the whalers, the major issues centered upon rebuilding capital stock and equipment. The war had afforded the whales an unwanted yet beneficial recess, which helped stocks recover from prior exploitation.[19] The potential of restricted access to the Antarctic, abundant stocks and the certainty of strong demand for edible fats encouraged extensive preparations.

For those concerned with protecting whales, on the other hand, the war presented a unique opportunity. Since many ships were destroyed, the opportunity to restrict the fleet and thus overall exploitation was a distinct possibility. For this small group, largely composed of scientists and conservationists, the respite given the whales was significant, but until research proved otherwise, the stocks remained in danger.

Two wartime meetings concentrated on swift reconstruction and the timely supply of whale oil to alleviate hunger. The first, in January, 1944, was intended only as preliminary to a comprehensive postwar meeting, yet the resulting decisions cast a long shadow over the hopes for conservation.[20] The 1944 Protocol amended the 1931 Convention and applied to 1945-46, which was expected to be the first post-war season. The premier concern was maximum production by the small post-war fleet. To achieve this, the season was extended by 31 days, which allowed the expeditions to work to full capacity. The second measure of the Protocol, formulated by three scientists—Remington Kellogg of the United States,

[19] See for example, *Norwegian Whaling Gazette*, Vol. 35, November 1946, p. 277.
[20] See *International Whaling Statistics*, Vol. 17, "International Whaling Conference January 4, 13, 19, 31, 1944, London," 1947, pp. 52-57.

Berger Bergerson of Norway, and N.A. Mackintosh of Great Britain—was even more profound. Though the war had provided a reprieve, the actual effects of the recess were unclear, as pre-war population assessments were approximate, and there was little reliable data concerning reproductive potential for each species. Thus it was decided that the urgent need for whale oil merited minimal regulation.

The solution was expected to be temporary, yet it influenced whaling for decades. The scientists recommended a total quota expressed in Blue Whale Units. This was the first time the device was used in an international treaty, and it conveniently transformed the whales into a synthetic commodity. The scientists' perspective was informed by wartime necessity and optimistic assessments of stock rehabilitation. Discussion centered upon 1930s statistics, when, in the final pre-war seasons the annual take was between 21,000 and 30,000 BWU, a toll scientists thought excessive. The objective was to arrive at a number acceptable to policymakers concerned with famine and commercial representatives interested in the resurrection of the industry and profitability, while at the same time addressing the fears of those few who recognized the potential for biological disaster.

The panel recommended a quota for the 1945-46 season set at 16,000 BWU. This figure was adopted for several reasons, the foremost being that, while it was only half of the record 1937-38 season, it allowed the fleet to maximize production. The figure reflected optimism regarding the condition of the stocks, and also gave some protection to the Blue whale, which was over-exploited. The exact statistic of 16,000 was proposed by Bergerson in response to figures suggested by Kellogg (15,000 BWU) and Mackintosh (20,000) and was adopted as it "seemed to be more reassuring."

Though the scientists did not regard their recommendation as significant at the time,[21] the 1944 Protocol and the BWU quota system produced lasting impact. The quota incorporated erroneous assumptions about the effect of the reprieve, and 16,000 BWU was actually excessive in light of the 1930s' rampage. As one scientist later explained, "for the stocks of whales only hostilities ended too soon."[22] The protocol was deeply flawed; in aggregating all whales into BWU it failed to guard individual species and intensified effort on the largest animals. While the measures were meant to be temporary, the BWU quota became the main structural element of international regulation and resisted modification.

The premier accomplishment of the 1945 conference was the adoption of a requirement that every expedition report its weekly catch, in terms of Blue Whale Units, to the Bureau of Whaling Statistics. The Bureau calculated the total catch of all expeditions and when the overall quota for the season was drawing near, determined a date by which the quota would be achieved. It then notified expeditions regarding the close of the season.

The International Whaling Commission

[21] J.N. Tonnessen and A.O. Johnsen, *The History of Modern Whaling* (Berkeley: C. Hurst & Co. Publishers, Ltd., 1982), p. 491.
[22] Johan T. Ruud, "International Regulation of Whaling: A Critical Survey," *Norwegian Whaling Gazette*, Vol. 45, July 1956, p. 379.

In 1946 the United States hosted a meeting that powerfully influenced the course of whaling. Its objectives were to codify existing regulations dating to 1931 and establish an organization responsible for modifying them as necessary.[23] Excellent attendance reflected the urgency caused by the emergency in world fat supplies and the dismal results of the 1945-46 season. The threat of new entrants to whaling was also a concern for the industry, which had previously discouraged any effort in that regard, but as the whale populations diminished, it understood the potential benefits of international regulation.

The International Convention for the Regulation of Whaling (ICRW) came into force in Washington, D.C. on December 2, 1946.[24] Article III established the International Whaling Commission, charged with protecting whale stocks, maximizing the "optimum yield," and guiding reconstruction. The IWC includes one voting member from each state, who may be accompanied at meetings by one or more advisers—typically representatives from the industry. It incorporates a device, the Schedule, which codifies regulations accumulated since 1931. Article V empowers the IWC to regulate whaling with an eye toward conservation. This was an important benefit of the new system. With amendment power, problems could be answered swiftly, as any amendments were immediately binding upon all parties. The tools were those of the 1930s and included designation of protected species; setting dates for the season; specifying closed waters or sanctuaries; size restrictions; restrictions upon the time, intensity and methods of whaling; the reporting of catch data, and other devices. Article V specifies powers beyond the Commission's scope and authority. It was not charged to enact restrictions on the number or nationality of factory ships or land stations, nor was it permitted to allocate specific quotas to any expedition. In addition, the IWC is directed to consider the interests of consumers and the industry in formulating any regulations.

In accord with international law, the IWC lacks enforcement and prosecutorial power. Under Article IX, contracting governments are tasked with the administration of the regulations through domestic legislation as well as adjudication and punishment of transgressions. Members are required to record infractions with the Commission and report corrective measures. Though it was flawed, the ICRW encouraged the few prescient observers who saw whales as more than floating oil wells. It did not match conservationists' expectations, but it was an attempted improvement over the improvisations of the 1930s and a great leap over the era of unrestricted exploitation.

Whalers accepted the Convention largely because they realized that the industry could no longer engage in the unrestricted behavior of the 1930s. This was a matter of survival As the editors of the *Norwegian Whaling Gazette* noted in 1947, if

> the international regulation of the catch in the Antarctic should terminate, the stock of whales will be so reduced that in the course of only a few years the same will happen to Antarctic whaling as has happened to the whaling in other parts of the world: it will be past

[23] See "The International Whaling Conference Washington, D.C., November 20-December 2, 1946," *Norwegian Whaling Gazette*, Vol. 36, January 1947, pp. 5-23 and "The International Whaling Conference Washington D.C., November 20-December 2, 1946," *International Whaling Statistics*, Vol. 18, March 1948, pp. 27-53.
[24] United Nations, *Treaty Series: Treaties and International Agreements Registered or Filed and Recorded with the Secretariat of the United Nations*, Vol. 161 (New York: United Nations, 1953), pp. 72-82. The text of the convention can also be accessed at: http://www.iwcoffice.org/Convention.htm.

> history only. Consequently the only way to conserve the stock of whales is to maintain the international regulation of the total catch. If this cannot be done there is no hope neither for the stock of whales nor for the whaling industry.[25]

The cartel shared expectations about the prospects of the new era and opinion regarding the entrance of interlopers in what they considered an exclusive domain. There was common recognition that wartime destruction and IWC regulation were beneficial in the long run for the cartel. The war reduced their fleets, but the British and Norwegians still enjoyed many advantages. They believed Germany and Japan would be forbidden to resume whaling, and the Soviet Union would be unable to resurrect its industry immediately because of wartime losses. Other entrants could be blocked with a combination of restrictive Norwegian labor laws and private agreements controlling technology diffusion. The Washington Convention reinforced these attitudes: the cartel was implicit in formulating the regime and recognized the utility of regulation in barring competition.

Planning for the resumption of whaling assumed competition would be minimal and would occur under the aegis of effective regulations. Neither of these assumptions came to pass, and the brief tranquility the whales enjoyed during the war was followed by an unchecked slaughter. Contributing to this disaster was the war's effect on the production of edible fats. The conflict disrupted the economies of many major producers of these vital foodstuffs, and in war-torn nations these effects were compounded by land going fallow, disruption of agricultural labor, destruction of infrastructure such as irrigation systems and transportation networks, devastation of farm machinery, the ruin of crops, and damage inflicted on the land itself. These effects were compounded by several poor global harvests of oilseed, groundnut and other crops. Scarcity caused high prices for all of these commodities in spite of price controls that remained in some places until the 1950s. This was the environment in which reconstruction occurred, and these factors weighed heavily in investments. Under these circumstances, whale oil was a desirable commodity with unique advantages. Whaling was unaffected by drought or local political conditions, and while some seasons proved more productive, whale oil was a stable component of the market. It was also available all at once, when expeditions returned home, and it could be stored indefinitely without deterioration.

The British and Norwegians swiftly resurrected their fleets, assisted by cooperative policy-makers and the expedient conversion of warships to whaling. While early post-war seasons were marginal, the returns convinced investors that whaling remained worthwhile. These lofty post-war expectations were short-lived, however. Far from the comfortable arrangement envisioned by the cartel, by 1946 many nations indicated interest in whaling. The attendance at Washington was an unwelcome indication of this trend. The Dutch declared their intention to dispatch a subsidized expedition and claim a share of the quota, and completed a factory ship, the *Willem Barendsz*. The situation intensified when four floating factories that were located in Germany were distributed as prizes of war among Norway, Great Britain and the Soviet Union, which thus returned to whaling more quickly than expected.

[25] *Norwegian Whaling Gazette*, Vol. 36, June 1947, p. 209.

Japan's return to whaling was ominous. The country entered whaling in the 1930s and achieved rapid success. Its operations succeeded because, in addition to whale oil, this industry delivered whale meat to Japanese markets, a significant advantage in profitability. Douglas MacArthur was Japan's de-facto post-war leader, and to both alleviate hunger as well as relieve America of feeding Japan, he ordered the resumption of whaling in 1946.

Although wartime disruption and peak commodity prices were temporary, they profoundly affected industrial development. These conditions precipitated a maritime gold rush in the Antarctic, and the international fleet rapidly expanded. By 1948 there were eighteen floating factories and three shore stations, served by 211 catchers. All this equipment was deployed for just fourteen weeks, producing a harvest of 16,000 BWU. This yielded approximately 115.5 barrels of oil per BWU; and each long ton of oil sold at, on average, £100, a new record.[26]

It was in this atmosphere that the Commission first convened from May 30 to June 9, 1949.[27] The London meeting was not only of historic significance as an important attempt to place a high seas natural resource under international control but also because it established precedent for all subsequent meetings. A critical feature of this meeting, and a reality that endured for many years, was the low level of public attention it garnered.[28] This was an advantage for the whalers, as the absence of external interference allowed them to carry on unimpeded.

The meeting concentrated on organizational development, and little effort was directed to regulation.[29] Preliminaries included the election of a chairman, Berger Bergerson of Norway, an important figure in whaling who, like all of his successors, served a three-year term. The first Secretary was A.T.A. Dobson, a British civil servant experienced in fisheries and marine affairs.

The delegates established procedural rules, which produced lasting influence. The annual routine began with an opening session for the press, including a welcoming speech, usually generic, by an official of the host country. After this, the press and all outsiders were expelled, and negotiations were conducted in secret.[30] The first weighty event of every meeting was a presentation from the Bureau of International Whaling Statistics: a

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[26] "Provisional Survey of the Catch Results in the Antarctic Season 1948/49,"*NHT*, 38, August 1949, pp. 334-348 and *International Whaling Statistics*, Vol. 18. 1 long ton = 6 barrels.

[27] This was the first annual meeting of the IWC, an event that has been repeated every year since in various locations around the world. Though not discussed in this paper, the IWC since the organization deals with such wide-ranging topics as indigenous whale hunting and the capture of small cetaceans, including dolphins and porpoises. Readers interested in the detailed history of the organization are directed to the annual *Report of the Commission*, published by the IWC since 1949. Specific issues of the *Norwegian Whaling Gazette* and *International Whaling Statistics* also provide coverage of the meetings. The activities and actions of each meeting are also conveniently summarized in Patricia Birnie, *International Regulation of Whaling* (New York: Oceana Publications, Inc., 1984).

[28] *The New York Times*, for example, dedicated a brief article to the meeting at its conclusion.

[29] On the London meeting, see "The IWC: First Meeting in London," *Norwegian Whaling Gazette*, Vol. 38, October 1949, pp. 429-445 and "IWC: Report by the Chairman of the First Meeting," in the same publication, pp. 446-455.

[30] See David Day, *The Whale War* (London: Routledge & Kegan Paul, 1987), p. 33.

comprehensive review of the previous season's statistics, along with such scientific assessment of stocks as possible.

Given the era's profitability, it is unsurprising that in regard to the real work of the organization—conservation—little was accomplished in 1949, or over the next decade. A Norwegian proposal to amend the Schedule, lowering the quota for 1950 to 15,600 BWU, was soundly rejected. Given high prices and intense competition for 16,000 BWU, even such a modest measure was unacceptable.

The accomplishments of 1949 were a boon to the whalers. In the late 1930s the Humpback was heavily taxed as members of this species were vulnerable targets; at the 1938 conference, Humpbacks were accorded complete protection, preventing extirpation. In 1949, the Bureau of International Whaling Statistics data suggested recovery and the Commission lifted the ban, specifying an annual take of 1,250 Humpbacks. However, this small perk for the whalers devastated the whales; the IWC scheme for the Humpbacks was a dress rehearsal for the general disaster to follow. The expeditions radioed weekly catch reports to the Bureau of International Whaling Statistics. The BIWS tabulated the data, calculating the date the quota would be achieved, after which killing of humpbacks ceased. In 1949-50 whalers actually killed 2,145 humpbacks, and following seasons did not improve upon the record.[31]

The Humpbacks, whose recovery was never as robust as reported, were again in grave danger. The 16,000 BWU quota, fixed capriciously in 1944, became sacrosanct to the industry and was reduced only slightly for 1953-54 to 15,500 BWU. As some scientists feared, the wartime respite was insufficient. Now a mere commodity, the whales were enmeshed in a catastrophe that unfolded under the aegis of the organization ostensibly created to protect them.

The BWU Regime

This outcome was not unexpected. By the late 1940s, scientists were voicing doubt about the long-term viability of the BWU system. Addressing the second meeting, Secretary Dobson noted that aggregating the various species into BWU was scientifically unsound and that conservation would be better served by establishing a quota for each species. He continued with a pointed warning, noting that:

> There is much to indicate that the annual limitation of 16,000 is much too high. In former years the blue whales bore the brunt of the catch. When the blue whales became scarcer on the Antarctic grounds an increasingly large number of fin whales were killed and now the fin whale forms the chief part of the catch. Nevertheless the statistics which are presented at the meeting will show that the average size of the fin whale is also beginning to decline as the same way the blue whale did some years ago.[32]

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[31] For a full account of the effort against the Humpbacks, see the compiled statistics in *International Whaling Statistics* Vol. 20-25. After a number of experiments in regulating the Humpbacks in the 1950s, which brought the species closer to disaster, the IWC once again granted the species protected status in 1966.

[32] "The Second IWC Meeting in Oslo 17-21 July 1950: Report from A.T.A. Dobson," *Norwegian Whaling Gazette Yearbook 1950*, 1951, p. 111.

Dobson was not a lone voice. One of the scientists who calculated the 16,000 unit figure in 1944 was Berger Bergerson, the first IWC chairman and a respected cetologist. At the end of his term, he provided a strident alarm in the *Norwegian Whaling Gazette*. Bergerson reaffirmed Dobson's belief that the BWU system was unsound and that conservation objectives would have been better served by a species-by-species limit, but that was not viable in 1944. The reason for this, he explained, was that given the conditions of the industry, it was a difficult endeavor to ground effective regulations in line with scientific principles while maintaining profitability. The 16,000 BWU quota, which Bergerson himself had helped to establish, was excessive, and his closing appeal marked the most impassioned defense the whales received for many years.

> It will be a shameful thing if we, who are living, cannot arrange things in such a way that exploitation shall not exceed the ability of nature to replace what we have taken. I beg you to consider what future generations may think of us if we destroy these rich natural resources.[33]

Dobson, Bergerson, and others were ignored, although their analysis was prophetic. The Schedule was never adjusted to reflect scientific evidence indicating that whale stocks were incapable of withstanding such heavy exploitation. To the contrary, like a driver responding to a caution signal by accelerating, the industry, motivated by the relentless quest for profit, responded to the hazard specified in *International Whaling Statistics* with new investment.

The logic of the IWC was a catalyst to the profit motive of the whalers, and these elements in combination doomed the whales. It is important to understand precisely how this system functioned. To start, the whalers were rewarded for successful reconstruction with record prices for whale oil. At the same time, the quota system set a strict limit to each season's harvest, and by the late 1940s the whalers were caught between the potential for vast profit and the quota system's production limitations. The whalers responded with renewed commitment of capital investment in physical plant; the factory ship fleet was modernized. While the surviving vessels performed adequately, the whaling companies built upon success, swiftly replacing these ships. In a decade, 22 new factories were commissioned.

The catcher fleet was also modernized. These new ships bore a superficial resemblance to pre-war catchers but represented a marked evolution in capability. Increasing efficiency powered the catastrophe. These ships incorporated a suite of sensors brought to maturity during the war. Radar enhanced capabilities, and catchers were able to navigate the ice-pack in all weather at great distances from the factory ship. Sonar located whales and scared them to the surface. Aircraft scouted for whales and relayed their position. There were also improved whale cannon and synthetic ropes. Catchers marked carcasses with a radio beacon, radar reflector and the company pennant, to be retrieved by a buoy boat while the catchers resumed work. Antibiotics were injected in carcasses to delay autolysis. In a word, the *machine* had triumphed over nature.

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[33] Berger Bergerson, "The International Whaling Convention," *Norwegian Whaling Gazette*, Vol. 41, November 1952, pp. 593-602.

With the strong market for oil and the quota system, the whalers sought greater efficiency. Research and development brought new products to the market. The result was a steady improvement in the ratio of oil production per BWU. From its inception, the device was a measure of oil production efficiency, with the original benchmark being 110 barrels of whale oil per unit. By 1958, whalers squeezed 129 barrels of oil from each unit.[34]

Antarctic operations devolved into a "whaling olympic" because of the frenzied competition for the biggest share of the limited catch.[35] The IWC convened annually to determine the total permitted catch expressed in BWU and the opening date for the season.[36] The procedure developed to ensure that the quota would not be violated informed the olympic's logic. On opening day, the expeditions sought to be in the midst of the whales and commence operations in fortuitous conditions. Each week expedition managers radioed the catch to the Bureau of International Whaling Statistics in Oslo. The BIWS tabulated the aggregate catch for the season to date, and technicians estimated the date when the quota would be fulfilled. The Commission established the closing date and notified the whalers.

The season was a race against time, a free-for-all pitting company against company, each scrambling for the greatest quota percentage. Financial success was achieved by taking as many whales as possible before official closure. Maximizing production, gunners killed everything, including nursing females and juveniles. Effort was redoubled before the closing date to maximize production; consequently, the quota was often exceeded when the final catch was tabulated. Every year, whales became scarcer. Driven by the olympic, expeditions deployed larger, faster catcher boats.[37] Scarcity required better catchers, and better catchers led to fewer whales. In a decade, the time between opening day and the close of the season was halved.

[34] The *International Whaling Statistics* provide a detailed record of both catch statistics and oil production. The *Annual Report of the International Whaling Commission* also provides summarized accounts of this data.
[35] See for example "Antarctic Operations," *Norwegian Whaling Gazette*, Vol. 41, March 1952, pp. 103-109.
[36] The meetings were most often held in June, in order to gather the requisite data from the previous season and provide for stock assessment. This also permitted the whaling companies with adequate time to refit and plan for the upcoming season.
[37] A logical solution to this dilemma would have been to reduce the number of catcher boats. While the IWC made repeated attempts to address the problem, no comprehensive and effective compromise could be achieved, because it was clear that any free-riders would gain a distinct advantage.

Table 2: **The Whaling Olympic**

Statistics for catcher and factory material for seasons 1934 and 1946-1959

Season	Factory ships		Catchers		avg. # catchers/factory	
No.	Avg.	Gross tonnage	No.	Avg.	Gross tonnage	Avg. HP
1934/35	23	11,451	143	254	894	6.2
1946/47	15	13,212	129	328	1,233	8.6
1947/48	17	13,809	162	347	1,302	9.5
1948/49	18	14,134	191	399	1,501	10.6
1949/50	18	14,284	216	424	1,582	12.0
1950/51	19	14,297	239	454	1,705	12.6
1951/52	19	15,217	263	473	1,774	13.8
1952/53	16	14,903	230	494	1,862	14.4
1953/54	17	15,406	206	498	1,874	12.1
1954/55	19	15,063	233	511	1,933	12.3
1955/56	19	16,093	257	513	1,945	13.5
1956/57	20	16,013	225	545	2,073	11.3
1957/58	20	16,083	237	570	2,190	11.9
1958/59	20	16,083	237	570	2,190	11.9

Source: Statistics compiled from *Norwegian Whaling Gazette*, Vol. 48, September 1959, pp. 453-455.

In 1951 whale oil reached £140 per long ton, thus during the 1950s, whaling was a good investment, although not without risk. As IWC Secretary Dobson observed in his 1950 report:

> The purpose of new investment of heavy amounts in an industry is usually to obtain increased production. This is not the case however, with the new investment which now takes place in the whaling industry. As is known, the pelagic catch in the Antarctic is limited to 16,000 BWU and this number of BWU and the oil produced from these must be shared by the participating expeditions.[38]

Eventually, under the impact of declining whale stocks, industry leaders recognized the need for cooperation. The restrictive Norwegian crew laws and informal agreements regarding the sale of technology to outsiders were useful and discouraged Italian and Argentinian efforts to enter the market. When stronger measures were required, the cartel acted.

In 1950, Aristotle Onassis outmaneuvered the cartel, deploying an expedition to Antarctica. Utilizing a converted tanker, the aptly named *Olympic Challenger*, his expedition ignored regulation and enjoyed good results. Onassis was a formidable opponent: while agreeing on little else, the whaling interests of Norway, Great Britain, the Netherlands and Japan cooperated to establish evidence against him and mounted a series of legal attacks, driving the "pirate whaler" out. The ensuing tragicomedy is laid out in successive issues of

[38] "International Whaling Commission Second Meeting in Oslo" *Norwegian Whaling Gazette*, Vol. 39, 1950, pp. 109-121.

the *Norwegian Whaling Gazette*. By 1956, concerted effort forced Onassis to concede, and his ships were sold to a Japanese firm.

Onassis was hardly a valiant underdog, trammeled by a powerful cartel. His vast maritime empire enabled the challenge, and by any measure the activities of his Olympic Whaling Company mark a foul chapter in this sordid history. But the difference between Onassis and his competitors was of degree, not of kind. The Norwegian Whaling Association and its allies were not instinctually motivated to protect the whales, nor was their position strengthened by moral authority—indeed, they were ultimately guilty of many of the same charges leveled against Onassis. Instead, the oligopoly reacted to threatened profits in a risky, doomed industry. The weapon of choice was the IWC, a regime established for conservation but employed here for utilitarian concerns by narrow-minded corporate interests to force an interloper from sharing a dwindling resource.

When Onassis sold out, the industry was entering crisis, and he was wise to cut his losses and invest elsewhere. Whaling prospered because of the food emergency and the absence of competition. By the mid-1950s the reconstruction of Europe was successful and agriculture recovered. There were advances in American agricultural productivity, and this was amplified by the opening of vast new tillage in the developing world. Price controls became unnecessary after 1955.[39] Whale oil tumbled from dominance and faced increasing competition at the time when the industry had responded to temporary advantage by expansion. From record highs in the early 1950s, when whale oil commanded up to £100 per long ton, it generally sold between £70-80 by decade's end.[40] During the boom, European firms overinvested and now faced a declining market, burdened with capital stock of limited resale value. Pressure from Japanese and Russian whaling, which enjoyed distinct advantages, intensified.

This lucrative era discouraged conservation. The BWU quota had many flaws, its outstanding defect being that it was excessively high.[41] Surveying the results of the 1953 season, Norwegian biologist Johan Ruud noted "there can hardly be any doubt that the stocks of whales as a result of the intense hunting that is going on each year are gradually being reduced, and that sooner or later a crisis will arise." Under these circumstances, he advised, the only effective method of maintaining profitability would be a greatly reduced quota.[42]

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[39] The British Ministry of Food, for example, only lifted its controls on edible oils in 1954. See Wray Vamplew, *Salvesen of Leith* (Edinburgh: Scottish Academic Press, 1975), p. 245.

[40] The *Norwegian Whaling Gazette* generally provided adequate coverage of the world market conditions and prices for whale oil. More detailed analysis of the fats and oils market can be found in *Annual Review of the Oilseeds, Oils and Oilcakes* published annually 1923-82 by Frank Fehr and Company, London. A useful summary of whale oil prices in the 20th century is found in the appendix to Tonnesen and Johnsen.

[41] Another deep flaw of the scheme was not even known until well after severe damage had occurred. In the early 1960s, British researcher D.T. Crisp demonstrated that the BWU was completely inaccurate in terms of the actual comparative value of each species of whale. Thus, throughout its history the IWC had used a flawed measure as one of its premier regulatory tools. See D.T. Crisp, "The Tonnages of Whales Taken by Antarctic Pelagic Operations during Twenty Seasons: An Examination of the BWU," *NHT*, 51, October 1962, pp. 389-95.

[42] "Statement of Active Whaling Men Concerning the Last Antarctic Season," *Norwegian Whaling Gazette*, Vol. 43, June 1954, p. 220.

Although it was widely known that the quota was too high, no action was taken. The IWC Scientific Committee made consistent reduction recommendations. In 1955 for example, scientists advocated an immediate reduction to a still excessive 11,000 BWU. This was rejected, and the quota for 1955-56 was 15,000 BWU. The industry opposed modifications threatening profits; the postwar expansion was of such magnitude that even miniscule adjustments to the Schedule were onerous. By the 1955-56 season, 19 floating factories and 257 catchers descended upon the Antarctic to pursue a quota lowered to 15,000 BWU over strident industrial opposition. The quota was fulfilled in 55 days, during which 58,126 whales were slaughtered. After this, some ships engaged Sperm whales, but otherwise, their utility was complete for the year.

The logic of the BWU regime was subjected to vigorous criticism from scientists who were not only concerned with quota size, but also with the perils of using the BWU to guide regulation. The BWU was conceived to estimate oil production; however, the synthetic aggregation of diverse species into commodity form made provision for stock variation and the reproductive cycle of individual species impossible.

While the merits of establishing a species quota were apparent even in the earliest years of the Commission, the industry prevented this action. The whalers wanted to avoid maintaining more detailed records and transmitting more data to the BIWS. A species quota threatened profits, since whalers never knew what whales would be encountered. The BWU was maintained because it permitted the whalers great latitude. Whether a catcher encountered Blue or Fin whales, it made no difference to the gunner—all were converted into BWU.

The whalers resisted all IWC interference. Minimum size requirements, standard since the 1930s, sought to ensure that whales could reproduce before death. This was one of few regulatory devices available. But it was difficult to gauge the size of a swift, submerged animal; weather conditions complicated matters, and even skilled gunners had trouble gauging size. The whalers inevitably argued for a smaller minimum size than those suggested by scientists.[43] At the Washington Conference, for example, it was well established that the 70-foot minimum length set for the Blue whale in the 1930s was incorrect because the whales only achieved sexual maturity when they were much larger. Nevertheless, the 70-foot minimum was retained at the insistence of the industry.

The gunner's bonus system also circumvented regulation. Generally a full bonus was paid only for a "legal" kill (i.e. one that conformed to the requirements) and a half bonus for others. While the gunners were still rewarded for illegal kills, statistics indicate a very large number of whales killed precisely at or just a few inches over the minimum size. Untold numbers of undersized whales were killed in violation of the rules.

Efforts to establish an international observer program requiring an unbiased inspector for each expedition were fruitless. Another potential solution was to place limits on catcher power. By the early 1950s, the struggle to achieve catcher superiority brought

[43] The London Protocol of 1938, for example, involved a backing down of length requirements for the Blue whale from 70 to 65 feet, for Fin whales from 55 to 50 feet, and from 35 down to 30 feet for Sperm whales, a modification aimed at placating whalers, especially the Japanese. See Tonnesen and Johnsen, *op. cit.*, p. 461.

only diminishing returns. The IWC was powerless in this regard, since the Convention did not allow it to restrict the size of national fleets. The Norwegian Whaling Association brought the world industry together for private discussion on catcher restrictions in 1952; these were similar to arms control talks, and there was ample concern about good faith. No agreement on catcher power was possible until the 1953/54 season. The Soviet Union refused to participate, however, and by 1961 the catcher fleet included 261 ships.[44]

Driven by desperation, whalers adopted various strategies to bolster sagging productivity. The industry resisted affording greater protection to two of the most imperiled species, the Humpback and the Blue whales. From their standpoint it was rational to cheat on the IWC regulations. Many expeditions inflated catch statistics, hastening the official end of the season, while continuing operations illegally. Avoiding detection was paramount; there is scarce data to estimate the damage from this behavior, but population statistics suggest it was widespread. In 1962, for example, the Scientific Committee reported Humpback populations indicated a swift decline in the previous two seasons. Upwards of 5,000 Humpback whales vanished, and the scientists believed these animals were killed illegally and production records falsified.[45]

Even optimistic observers acknowledged the swiftly declining productivity of whaling, a plight exacerbated by rising costs. In 1958 these conditions precipitated a crisis. The U.S.S.R. announced that as part of its next five-year plan it was greatly expanding operations, constructing at least three new factories and attendant catchers. At the same time, the Scientific Committee provided incontrovertible evidence that the quota, which was still held between 14,500 and 15,000 BWU, was far out of proportion to what the whales could endure.[46]

National Quotas

Commission meetings became acrimonious. The focus of negotiations after 1956 was the provision of national quotas, which would, hopefully, eliminate the dysfunction of the olympic. The struggle over quota share was protracted, and in 1959, Norway, frustrated by lack of progress, announced that it would withdraw from the Convention if no national quota system was adopted for the following season. These efforts failed, and at the 11th meeting Norway announced its withdrawal from the ICRW, with Japan and the U.S.S.R. following suit.

Norway's withdrawal was symbolic, as it pledged to honor established regulations. But the organizational collapse was catastrophic. The failure to salvage the regime meant the 1959-60 season was deadlier than any previous season; the Schedule was effectively dissolved and each nation decided its own quota. Unregulated, during the 1959-60 season pelagic whaling exacted a toll of 15,512 BWU representing 36,559 whales of all species, producing

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[44] See International Whaling Commission, "Annual Report of the Commission, 18th Report," London, 1968.
[45] For more on the case as well as other violations suspected by the IWC, see the report of the scientific committee in International Whaling Commission, "Annual Report of the Commission, 16th Report," London, 1964, and other scientific committee reports.
[46] See for example, E.J. Slijper, "Ten years of Whale Research," *Norwegian Whaling Gazette*, Vol. 48, March 1959, pp. 117-127.

2,050,892 barrels of oil. These numbers exceeded what the already dangerously overtaxed whale populations could sustain. By 1960 it was apparent that the cautious and generally ignored reports of the Scientific Committee were flawed and that the whales were in grave danger.

Effort was directed to resurrecting the Convention. The dominant strategy was a British suggestion to abolish the annual quota for 1960-61 and 1961-62, with the understanding that each state would impose voluntary limits, along with other measures to ensure that whaling did not descend into anarchy. Neither the suspension of the quota nor additional precautionary measures were effective. While Norway rejoined the IWC late in 1960, the season was a free for all, and the destruction accelerated. Freed from all restrictions, the whalers revisited the slaughter of the pre-convention era, and harvested 16,433 BWU, the second highest take ever.

National quotas were established in June 1962, with the U.S.S.R. retaining the 20 percent it demanded. The division of the remainder was rancorous and caused the collapse of the regime: 32 percent was allotted to Norway, 33 percent to Japan, 9 percent to Great Britain, and the rest to the Netherlands.[47] At Japanese insistence the 1962-63 quota was set at 15,000 BWU, greatly exceeding the whales' reproductive potential. In spite of this, the season yielded only 11,306 BWU, providing diminished profits and conclusive evidence the whales were being exterminated. The IWC recovered but the whales did not, and with the demise of the once incalculable Antarctic stocks, industrial decline was swift.

Table 3: The Post-War Expansion and the Collapse of Pelagic Whaling

Catch Material and Production Statistics for Select Seasons 1945-69

Year	Factories	Catchers	BWU Quota	Total BWU	Oil Production-barrels
1945/46	9	77	16,000	7,381	739,775
1946/47	15	129	16,000	15,304	1,794,424
1947/48	17	162	16,000	16,007	1,940,653
1950/51	19	239	16,000	16,416	2,152,498
1951/52	20	268	16,000	14,866	2,334,805
1954/55	19	233	15,500	15,323	2,061,789
1957/58	20	237	14,500	14,850	2,146,206
1959/60	20	220	none	15,512	2,050,892
1960/61	21	252	none	16,433	2,123,157
1961/62	21	261	none	15,252	2,001,961
1963/64	16	190	10,000	8,429	1,299,476
1964/65	15	172	8,000	6,986	1,017,611
1965/66	10	128	4,500	4,090	634,299
1966/67	9	121	3,500	3,511	600,666
1967/68	8	97	3,200	2,803	419,046
1968/69	6	85	3,200	2,472	423,880

Source: Data compiled from International Whaling Commission, Annual Reports of the Commission

Operations were brutally one-sided and thoughtless; the time, location and vital statistics of every kill were meticulously recorded by the Bureau of Whaling Statistics, yet

[47] For the details of the quota arrangements, see "International Quota Agreements," *Norwegian Whaling Gazette*, Vol. 51, December 1962, pp. 461-465.

science had its first complete blue whale skeleton only after a tanker collision in 1998. The whaling firms were cognizant of the consequences of their behavior. The January 1959 *Norwegian Whaling Gazette* featured a graphic that implied whaling was in deep trouble and that investors would be wise to seek their fortunes elsewhere. The whales' fate was directed by an economic logic which reduced them to a convenient, completely synthetic abstraction.

The complete effect of the commodity fiction was apparent as European firms exited whaling. A codicil to the agreement on national quotas specified that no percentage of a national quota could be transferred or sold without the sale of the factory ship holding the share. Japanese firms enjoyed a lucrative market for whale meat as well as lower labor costs, and found the purchase of floating factories a practical means of expanding their share of the annual quota. The buyers were interested solely in acquiring the quota; the vessels themselves were scrapped. European whaling swiftly ended, starting with the sale of the factory ship *Balaena* of the British United Whalers Company and its quota in 1960. The Kosmos Whaling Company's *Kosmos III* was sold next, with a 700 BWU quota and five catchers, for £2,775,000. By 1969 only the Japanese and the Soviet industries survived, dispatching six expeditions in pursuit of a quota which, after intense struggle, was reduced to 3200 BWU. But the whales were incapable of sustaining the assault, and the season produced just 2472 BWU.

Moratorium?

It was difficult sustaining the sham conservation perpetrated by the whalers in the face of mounting publicity surrounding the biological catastrophe in the Antarctic. At the 1972 United Nations Conference on the Human Environment, the whale was symbolic of a wider conception of ecology. The Stockholm conference unanimously recommended a complete moratorium on whaling. This was without force, but it signaled the end of the traditional politics of the whaling regime. After a decade of attempts to end whaling and the increasing politicization of annual meetings, which was amplified by media attention, the 1982 IWC meeting brought closure.[48] Beginning in 1986, the quota was eliminated, and a moratorium was imposed on commercial whaling for ten years. In 1994 the Commission declared the entire Southern Ocean a whale sanctuary.

Commercial whaling endures regardless of these policies. Norway objected to the moratorium and hunts Minke whales in the North Atlantic. Iceland resumed whaling in 2006. Hoping to capitalize on exports to Japan, Icelandic whalers plan to hunt Minke and endangered Fin whales in 2008. Since 1986, Japan has hunted whales behind the aegis of "scientific" whaling as provided under the Schedule to the IWC Convention. The Commission has repeatedly requested the suspension of this "research," yet in the 2006-2007 season Japan killed a total of 866 Fin, Sperm, Sei, Brydes and Minke whales.[49]

Whale meat remains common in Japan, and there is a rapidly emerging market for krill hydrolysates, livestock feed derived from a primary rung of Antarctic food webs. In this mode, whale food is transformed, variously, into chicken, pork or salmon, fulfilling the

[48] International Whaling Commission, *Annual Reports of the Commission,* 34th Report, London, 1983.
[49] Complete information on contemporary whaling is available online at: http://www.iwcoffice.org/conservation/permits.htm.

analysis of the Frankfurt School that suggests capitalist rationality is fueled with a powerful distillate of positivism and magic. Thus, in spite of the moratorium, many species remain directly threatened by hunting and wider industrial practices, which may alter the unique Antarctic ecosystem. The Blue whale, for example, remains critically endangered and the Commission estimates that no more than 4,500 remain, a tiny fraction of the pre-exploitation population.[50]

Subsistence whaling is ancient, and will presumably continue at low levels of IWC-sanctioned exploitation as long as the small aboriginal communities that practice it persist. Commercial whaling however, is likely to endure only so long as it remains profitable. In this respect, Japan is central to the future of whaling. Japan has strategically dispensed international development funding, especially fisheries assistance, to influence the decisions of the IWC. The 2006 St. Kitts declaration supporting whaling was made possible by the votes of developing nations receiving this funding.

Greenpeace is at the forefront of an international campaign to end all commercial whaling. Activists directly confront whalers in the Antarctic and elsewhere. More significantly, Greenpeace deploys its considerable resources and experience to publicize the brutality of commercial whaling. In the final analysis, however, whaling will likely endure until Japanese consumers change their consumption habits. A strategic victory in this arena was the highly publicized whaling scandal of May 2008, where Greenpeace activists uncovered corruption and fraud within the subsidized whaling industry.51 This may ultimately force change in the Japanese whaling program.

Conclusion

Neoliberal ideology infuses the contemporary global political economy of fishing.[52] Ancient regulatory regimes incorporating ecology and social justice are swept away by a rational-technocratic approach heavily biased by the inequalities of the global economy. Fish is the most traded animal commodity on Earth, and the industry is structured to evade serious regulation. Despite the assurances of neoliberalism, global trade in fish is distinctly one-sided—a reality vividly illustrated by the film *Darwin's Nightmare*.[53] Trade, notes George Kent, "tends to move fish away from poor people."[54]

Many of the same neoliberal premises that delivered ruin to the Antarctic are now being enthusiastically deployed in fisheries management. Neoliberal approaches to fisheries

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[50] Current population estimates for all species can be found at online at: http://www.iwcoffice.org/conservation/estimate.htm.
[51] "Greenpeace Reports Theft of Whale Meat by Whaling Crews," *Environmental News Service*, May 19, 2008, online at: http://www.ens-newswire.com/ens/may2008/2008-05-19-01.asp.
[52] See Menachem Ben-Yami, "Fisheries Management: Hijacked by Neoliberal Economics," *Samudra Report*, Vol. 35, July 2003.
[53] *Darwin't Nightmare* is a documentary released in 2004 about the devastation wrought to Lake Victoria and the communities that surround it by the introduction in the 1960s of the Nile Perch, a voracious predator that wiped out most of the native fish in the lake. The Nile Perch is mainly exported to Europe and is traded for weapons that fuel countless armed conflicts in Africa.
[54] George Kent, "Fisheries, Food Security and the Poor," *Food Policy*, Vol. 22, No. 5, pp. 393-404.

management prescribe privatization and market-based governance.[55] Propelled by neoliberal assumptions, the market reduces mangrove wilderness to shrimp farms, with devastating social and ecological consequences. There are stark indications of the failure of technocratic fishing regulation to date. Decades of application in Europe and elsewhere have caused the collapse of stocks, as in Canada's Northwest Atlantic Cod fishery, which rendered tens of thousands of fishers redundant, and shows few indications of recovery more than a decade after its failure.[56] As Jeremy Jackson concluded in 2001, evidence points to the danger of a general biological catastrophe: "absolute microbial domination" of coastal ecosystems within two generations is a distinct possibility.[57]

Bunker and Ciccantell's recent examination of the contemporary scramble for iron ore recalls the whaling olympic; capitalism relies upon spatial expansion and material intensification in order to overcome the unequal growth rates between natural and material production.[58] This impasse of industrial civilization is unlikely to be remedied with the mere regulation of production; for such strategies can be manipulated to subvert their intent. As orthodox remedies reach their natural limits, "capital's solutions to the contradiction of scale and space may engender even greater aggression and violence in addition to increased inequality and environmental destruction."[59]

The ideological software of neoliberalism does not lend itself to resolution of this problem, as it prioritizes a restrictive form of citizenship. Capitalism transforms the worst features of earlier times into cherished values. As John Dryzek observes, the "instrumentally rational, egoistic persons produced by capitalism may help markets work as Adam Smith projected, but such people subvert democratic politics."[60]

Conversely, Soviet culpability in the destruction of the whales suggests that the socialist experiment to date provides few answers. The legacy of Soviet-style socialism is not devoid of meritorious ecological thought, yet the blunt fact remains that in the second half of the 20th century, it is precisely these states that demonstrated the worst excesses of technocracy in pursuit of whales and fish.[61] One could argue that these states were caught in a classic collective action dilemma—that since rapacious behavior was widespread, it made

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[55] A positive endorsement of such practices is found in Rögnvldur Hannesson, *The Privatization of the Oceans* (Cambridge, MA: MIT Press, 2004); Becky Mansfield, "Neoliberalism in the Oceans: 'Rationalization,' Property Rights and the Commons Question," *Geoforum*, Vol. 35, No. 3, May 2004, pp. 313-326, provides a useful counterpoint.

[56] On the contemporary status of global fisheries, see FAO Fisheries Department, "Review of the State of World Marine Fishery Resources FAO Fisheries Technical Paper 457," Rome, 2005.

[57] See Jeremy B.C. Jackson, "What Was Natural in the Coastal Oceans?," *Proceedings of the National Academy of Sciences*, Vol. 98, No. 10, 2001, pp. 5411-5418; See also Daniel Pauly, Villy Christensen, Johanne Dalsgaard, Rainier Froese, Francisco Torres, "Fishing Down Marine Food Webs," *Science*, Vol. 279, No. 5352, February 6, 1998, pp. 860-863.

[58] Stephen G. Bunker and Paul S. Ciccantell, *Globalization and the Race for Resources* (Baltimore: Johns Hopkins University Press, 2005).

[59] *Ibid.*, p. 234.

[60] John Dryzek, *Democracy in Capitalist Times: Ideals, Limits and Struggles* (New York: Oxford University Press, 1996), p. 145.

[61] See, for example the symposia "Socialism and Ecology," especially Arran Gare, "The Environmental Record of the Soviet Union" in *Capitalism Nature Socialism*, Vol. 13, No. 3, September 2002; Philip R. Pryde *Environmental Management in the Soviet Union* (Cambridge: Cambridge University Press, 1991).

no sense for these actors to refrain from joining in and capturing a share of the spoils while they lasted. The perspective on socialism developed by Nicos Poulantzas offers another response—that the U.S.S.R. and its satellites were not truly socialist but merely "state-directed capitalism"[62] The operating logic and organizational behavior of the fishing and whaling operations of these states gives this perspective more credibility.[63]

The ultimate response to these dilemmas may be the evolution of a citizenship far beyond neoliberal imagination. Globalization everywhere conditions political life. The ability of polities to legislate collective solutions has eroded. Received wisdom suggests that "markets" are somehow moral, while political solutions are not. In a recent bestseller, Fareed Zakaria intones: "What we need in politics today is not more democracy, but less."[64] The shabby panopticon constructed on this logic is sustained through exploitation, social polarization and widespread insecurity. It denies constraints implied by the laws of thermodynamics, generating ecological devastation—a stark utopia, indeed.

The only enduring solution to these dilemmas must originate with a conception of freedom uncoupled from neoliberal logic, a conception that acknowledges the social and political individual as well as the economic. As Polanyi observed in 1944, contrary to capitalist thinking, this does not entail abandonment of freedom to a collectivist impulse. Writing after World War II, he observed that among the minority of society aware of this predicament, two responses are discernable:

> Some believe in elites and aristocracies, in managerialism and the corporation. They feel that the whole of society should be more intimately adjusted to the economic system, which they should wish to remain unchanged. This is the ideal of the Brave New World, where the individual is conditioned to support an order that has been designed for him by such as are wiser than he. Others, on the contrary, believe that in a truly democratic society, the problem of production would resolve itself through the planned intervention of the producers and consumers themselves. Such conscious and responsible action is, indeed, one of the embodiments of freedom in a complex society.[65]

As evidenced by Adam Smith in *The Theory of Moral Sentiments*, the pursuit of an unregulated market is a utopian abstraction: substantial evidence suggests the current configuration of neoliberal global order is unsustainable. Are we in the midst of a new "double-movement" presenting both opportunity and peril as the contradictory impulses of democracy and capitalism vie for authority in global politics?

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[62] Nico Poulantzas, *State, Power, Socialism* (London: Verso, 1978).
[63] On Soviet fishing see, generally, N.P. Sysoev, *Economics of the Soviet Fishing Industry* (Springfield, VA: Israel Program for Scientific Translations, 1974); for operational details and an indictment of Soviet practices by a former captain see Vadil Lysenko, *A Crime Against the World* (London: Victor Gollancz, 1983).
[64] Fareed Zakaria, *The Future of Freedom: Illiberal Democracy at Home and Abroad* (New York: W.W. Norton & Co., 2004), p. 248.
[65] Karl Polanyi, "Our Obsolete Market Mentality," in George Dalton (ed.), *Primitive, Archaic and Modern Economies: Essays of Karl Polanyi* (New York: Beacon Press, 1968), p. 76.