

# Multiple analysis of the whaling issue: Understanding the dispute by a matrix

Joji Morishita\*

*Director for International Negotiations, Fisheries Agency of Japan, 1-2-1 Kasumigaseki, Chiyoda-ku, Tokyo 100-8907, Japan*

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## Abstract

The contentious whaling dispute can be described as a scientific dispute over resource management, the collision between nations that regard whales as food and nations that see whales as special, political game played by politicians who like to be seen as environmentally conscious by opposing whaling, and economic interests of the whaling industry and fundraising anti-whaling organizations. All of these different interpretations are correct, however, none, by themselves, can explain the whole picture of the controversy. This paper, by constructing a matrix, presents a comprehensive picture of this complex dispute and some options for making a progress.

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## 1. Introduction

The whaling issue is one of the most controversial international problems, symbolized by emotional and even hostile exchanges between so-called pro- and anti-whaling countries, demonstrations and publicity stunts by anti-whaling NGOs, and press coverage with sensational headlines.

In 1982, the International Whaling Commission (IWC) adopted a moratorium on commercial whaling after an intensive anti-whaling campaign by the United States and other “like-minded” countries, but with no advice from the Scientific Committee for the necessity of the moratorium. More than 20 years have passed but the whaling controversy has still not finished nor has the resumption of whaling been achieved even though it is now scientifically possible to conduct sustainable whaling by the use of the Revised Management Procedure (RMP)<sup>1</sup> completed by the Scientific Committee of the IWC in 1992.

Many different interpretations and explanations as to the reasons for this international controversy have been presented but few of them have captured the whole structure of the complicated whaling issue.

The whaling issue can be described as a scientific dispute over resource management including issues of stock abundance and scientific uncertainties. Also, the whaling issue is often explained as the cultural and ethical collision between nations that regard whales as food and nations that see whales as special or even sacred. Political aspects also play an important role as it is politically important for the politicians in developed western nations to be seen as environmentally conscious by opposing whaling. Another aspect of the whaling controversy is economics. In the past, the economic issue was the survival of whaling industry. However, now the whaling issues are used by anti-whaling organizations as a tool to raise funds for the organization [1].

All of these different interpretations are correct in interpreting some aspects of the whaling issues, however,

\*Tel.: +81 3 3504 3995; fax: +81 3 3502 0571.

E-mail address: [jmorishita@aol.com](mailto:jmorishita@aol.com)

<sup>1</sup>The RMP, which was completed by the IWC Scientific Committee in 1992 and accepted by the Commission in 1994, is composed of a catch limit algorithm that will, on the basis of a series of computer simulations, calculate sustainable harvest quotas for whales while preventing adverse

(footnote continued)

effects on the whale stocks. The RMP is regarded as one of the most conservative and precautionary management tools for marine living resources.

none, by themselves, can explain the whole picture of the whaling controversy.

Furthermore, these different aspects of the issue have been changing over the time. If you look at one point of the history like a snapshot, a combination of these different aspects particular to the time will define the character of the controversy. Another snapshot taken at a different time would give us a very different picture of the controversy.

This multiplicity of the whaling issue, their interaction, and their transition over time often creates confusion especially among non-experts and media. This confusion contributes to making the issue even more political and emotional. Further, a picture might be taken which excludes one whole aspect or in which aspects of the 1960s and the 1980s are mixed together in the same picture.

It is very important to look at all aspects of the whaling issue in the correct temporal context and to analyze their interactions. This paper attempts to analyze the structure and transition of the whaling dispute by constructing a “matrix” to illustrate the various aspects of the issue. One axis of the matrix is time and the other axis shows some of the different aspects of the whaling dispute such as science, law and regulation, economy, politics, and culture and emotion. The matrix constructed in this manner is attached as Appendix A.

By employing this approach, the evolution of the whaling issue can be described. Another objective of this paper is to demonstrate that confusion and intentional misuse of arguments are exacerbating the whaling dispute. On the basis of this analysis, future directions and possible solutions of the whaling dispute are discussed.

## 2. Are whales endangered?

In analyzing the whaling issue, available scientific information on the abundance of different species of whales needs to be reviewed in order to avoid such well-used but totally misleading statement as “whales are endangered”. There are more than 80 different species of cetaceans and the statement is as wrong as stating that “birds are endangered”. Species of whales, such as blue, humpback, and minke, need to be specified in the discussions because their history of exploitation, biology, and stock abundance are quite different.

The IWC posts the results of the stock assessment of many whale species on its web site.<sup>2</sup> According to these results, which are based on the agreement by the Scientific Committee, some species of whales are abundant and others are increasing rapidly, sometimes at a rate of more than 10% annually. From a purely scientific viewpoint, statements such as “whales are endangered,” implying all species of whales are endangered or there is only one species of whales, are therefore simply preposterous.

It is true that the history of whaling had been a history of over-harvesting until the 1960s and the 1970s [2]. Many of

the whale species have experienced steady recoveries since that time and some of them are already abundant enough to be utilized if and when appropriate conservation and management measures are in place to prevent over-harvesting.

## 3. Analysis

### 3.1. Science

The role of science has been always important because the stock assessment of whales forms the basis for management decisions. Indeed, Article V of the International Convention of the Regulation of Whaling (ICRW) requires that regulations for the management of whales be based on scientific findings.<sup>3</sup> However, it is important to understand that scientific advice from the Scientific Committee has not always been followed by the IWC both in its early stages when whaling interests were the dominant force and since the 1980s when anti-whaling interests were the dominant force setting the IWC agenda. Further, the main issues in science have been changing and have become increasingly sophisticated over time. In addition, scientific data and knowledge have increased significantly over the years. Much of the scientific uncertainty or lack of scientific knowledge in the past is either no longer relevant at present or has been replaced by new scientific issues.

In the period before the 1972 Stockholm UN Conference on the Human Environment when a moratorium on commercial whaling was proposed for the first time, scientific knowledge on whale stocks was still limited compared to that of the present situation. In addition, the whale stock management systems utilized during that period, for example the Blue Whale Unit (BWU) system (1932–1972) and the New Management Procedure (NMP) (1975–), failed to function in a manner to prevent over-harvesting because of inappropriate system design and insufficient and uncertain scientific data.

The next time period is between 1972 and 1982 when the IWC adopted the moratorium on commercial whaling. The major reason of the moratorium was scientific uncertainty. The moratorium was adopted in order to suspend commercial whaling while addressing problems related to the lack of scientific data on the whale stocks and whale biology. However, we should note that the Scientific Committee of the IWC had taken the position that there was no necessity of prohibiting whaling on all species of whales because some species of whales such as minke

<sup>3</sup>ICRW Art V: “2. These amendments of the Schedule (a) shall be such as are necessary to carry out the objectives and purposes of this Convention and to provide for the conservation, development, and optimum utilization of the whale resources; (b) shall be based on scientific findings; (c) shall not involve restrictions on the number or nationality of factory ships or land stations, nor allocate specific quotas to any factory or ship or land station or to any group of factory ships or land stations; and (d) shall take into consideration the interests of the consumers of whale products and the whaling industry.”

<sup>2</sup>IWC web site: <http://www.iwcoffice.org>

whales were abundant enough to allow limited and controlled whaling. The interim nature of the moratorium is evident in the words of the Schedule of the ICRW as described in the following section.

In order to address the problem of the scientific uncertainty, Japan initiated its Special Permit Research on Minke Whales in the Antarctic (JARPA) from 1987 and begun the accumulation of scientific information on whale stocks. This marks the next time period of the science of whaling issue. Contrary to the arguments of anti-whaling governments and NGOs that typically describe the research as “commercial whaling in disguise,” the scientific whaling program has been providing valuable scientific data to the Scientific Committee of the IWC. It is important to note that while the political part of the IWC, the Plenary sessions of the Commission, have adopted resolutions against this research program, the Scientific Committee reports of the IWC clearly acknowledge the scientific contributions of the research [3]. The research has confirmed that many whale species, especially minke whales, are abundant or have been recovering after the introduction of the moratorium.<sup>4</sup>

In 1992, the Scientific Committee of the IWC completed and recommended adoption of the RMP which provides conservative and risk-averse quotas for baleen whales. Quotas calculated by the RMP are low in order to provide built-in safety factors to account for scientific uncertainties related to such things as the effects of environmental changes and possible errors in abundance estimates of up to 50%. Harvesting under RMP quotas would therefore have no adverse effects on whale stocks. However, in 1993 when the IWC decided not to adopt the RMP, the then Chairman of the Scientific Committee, Dr. Phil Hammond resigned to protest the Commission’s disregard for the advice of its own Scientific Committee. His letter of resignation [4] said

...what is the point of having a Scientific Committee if its unanimous recommendations on a matter of primary importance are treated with such contempt? ... I can no longer justify to myself being the organiser of and spokesman for a Committee whose work is held in such disregard by the body to which it is responsible.

The following year, the RMP was adopted by the IWC.

Development of the RMP has been a major achievement in the science of resource management. It is more precautionary than any management system currently applied to marine living resources and if a similar regime were applied to other marine fisheries, most of them would be closed [5]. However, when the RMP is applied to the southern hemisphere minke whales, it was calculated by the IWC Scientific Committee that at least 2000 animals could

be harvested every year for the next 100 years without posing adverse effects on the stock [6].

The RMP has not been implemented to date, more than 10 years after its completion because of the introduction of a new hurdle called the Revised Management Scheme (RMS) as explained below.

An emerging issue in the science of whales is the role of whales in the ecosystem. When stomach contents were analyzed as part of the scientific whaling programs, it was found that baleen whales eat a large amount of commercially important fish [7]. Clearly, when conservation requires a reduction in fishing effort or the number of fishing vessels in order to realize the recovery of fishery resources, we need to consider whether the consumption of these resources by whales undermines such efforts. Fisheries management organizations including the United Nations FAO are increasingly expressing the need for an ecosystem approach to fisheries management [8].

### 3.2. *International laws and regulations*

The principles of conservation and sustainable use of whale stocks are defined by the 1946 ICRW. These principles are appropriate even now, more than 50 years after their establishment. In this regard, it is significant that while “sustainable use” has become the world standard, anti-whaling governments reject the principle for managing whale resources.

The first meaningful whale management system established under the ICRW was the so-called Blue Whale Unit (BWU). The BWU was defined as the amount of whale oil which can be produced from one blue whale and the total harvest of whales was managed by this unit. The purpose of this system was not the conservation and management of whale stocks but the regulation of the oil production. Therefore, the major flaw of the BWU was the lack of biological considerations related to the abundance status of whale stocks and the lack of management by individual species.

Whales were harvested according to the amount of oil they produced in order to maximize economic efficiency of the harvest. The result was depletion and over-harvest of whales in the order of their size, starting from blue whales [9].

Based on this failure, a new management system called the New Management Procedure (NMP) was introduced in 1975 under which stocks were individually assessed and management measures such as a prohibition on catching or catching under quota were decided for each species. Theoretically, this management system was a valid approach in order to prevent over-harvesting of whales. However, this system required detailed scientific data on biological parameters such as natural mortality rates which were not available or not accurate enough at that time. Because of the lack of scientific information, the NMP provided an opportunity for the fledgling anti-whaling movement to use scientific uncertainty as the basis for calls

<sup>4</sup>The abundance estimate of Antarctic minke whales was agreed as 761,000 in 1990. This number is currently under review because of new data accumulated since that time.

for the prohibition of whaling. Before the NMP produced the outcomes which were originally intended, the moratorium on commercial whaling was adopted by the IWC in 1982 [10].

The moratorium on commercial whaling was established together with the following condition:

This provision will be kept under review, based upon the best scientific advice, and by 1990 at the latest the Commission will undertake a comprehensive assessment of the effects of this decision on whale stocks and consider modification of this provision and the establishment of other catch limits.<sup>5</sup>

Therefore the introduction of the moratorium also necessitated the accumulation of scientific knowledge on whale stocks and development of a yet new management system in order to handle the scientific uncertainty. As noted above, the Scientific Committee responded to this requirement by completing the RMP in 1992.

However the completion of the RMP did not mean the resumption of sustainable whaling because anti-whaling governments argued that in order to allow the resumption of whaling, yet new conditions such as placement of international observers<sup>6</sup> had to be established to ensure that catches did not exceed quotas. These measures and requirements are called the RMS. More than 10 years have been already spent for the discussion on the RMS and the measures in the package agreed to date, including the placement of international observers, together with domestic measures implemented by whaling countries,<sup>7</sup> are adequate to ensure sustainable whaling and are more than comparable to the management and control measures of other resource management schemes. In other words, a system which will enable sustainable utilization of whale stocks is already available.

However the RMS has not yet been agreed by the IWC because of delaying tactics of anti-whaling governments. These governments have, for example, demanded duplicative and unnecessary catch verification systems, collection of “animal welfare data” which is outside the competence of the IWC. They also demand that the burden of all additional costs for the implementation of an RMS be paid by the whaling countries. Whaling countries stated that they are prepared to accept a reasonable number of international observers and their fair share of financial

burden to implement an RMS but the demands from the anti-whaling countries have been excessive and unrealistic.

Furthermore, anti-whaling governments are now demanding additional elements as part of what is referred to as an “RMS package” before agreeing to implement an RMS and lift the moratorium. These additional elements currently being discussed include prohibitions on research whaling, whaling on the high seas and international trade in whale products [11].

Many anti-whaling countries are arguing in recent years that the completion of the RMS does not mean lifting of the moratorium. This argument means a fundamental change of the meaning of the RMS discussions because a RMS concept was introduced as a precondition for resumption of regulated whaling. If the moratorium is not lifted even if a RMS is completed, it is hard for whaling countries to continue the discussions.

Some anti-whaling countries also declared that they seek to amend the ICRW to eliminate such rights for contracting parties as conducting scientific whaling and objecting to schedule amendments. Under the current highly polarized situation of the IWC, it is impossible to expect a consensus for such a proposal which will fundamentally change the nature of the IWC. Therefore, this initiative is regarded by pro-sustainable use countries as yet another attempt to prevent the completion of the RMS.

### 3.3. *Economy*

Until the mid-1980s when commercial whaling was suspended by the moratorium on commercial whaling, the whaling issue in the context of economy could be characterized as the one about the economic interests of the whaling industry. The early management system for whaling based on the BWU was established for the purpose of maintaining the economic viability of whale oil prices by limiting the production. With the rise of the anti-whaling movement in the 1970s, the policy of whaling countries was formulated to defend this economic interest.

However the introduction of the moratorium changed this picture. Scientific whaling was initiated in order to address the uncertainty in the whale science which was the major argument for the introduction of the moratorium. Economic benefits are therefore no longer the goal of the current whaling. However, anti-whaling governments and NGOs continue to falsely argue that the scientific whaling is commercial whaling in disguise because the meat of the whales sampled is sold and therefore the economic gain is the prime purpose of the research. In case of the Japanese scientific whaling, the proceeds from the sale of whale meat are used to support the research of the following year. These proceeds are less than the costs of the research and the shortage is subsidized by the Government of Japan.

In the current controversy, the group that is economically most dependent on the whaling issue is ironically the extreme anti-whaling NGOs such as Greenpeace. These huge international organizations, with their own campaign

<sup>5</sup>Paragraph 10 (e), Schedule, ICRW.

<sup>6</sup>An international observer system was already introduced from the 1972–1973 Antarctic whaling season and had been successfully implemented until the introduction of the moratorium.

<sup>7</sup>Japan and Norway have domestic DNA registers in which virtually all legally caught whales are registered. The register can identify individual animals. Japan also conducts periodical market sampling of whales products and matches the results with the register. Combined with the regulation to prohibit imports of whales products from non-IWC member countries and non-whaling IWC members, effective market control measures to prevent smuggling and poaching are in place.

vessels and thousands of activists are collecting contributions from all over the world worth hundreds of millions of dollars per year [12]. Because of this economic interest, these organizations cannot say that whale stocks have recovered and that the whaling issue has already been resolved. Such admissions would in fact shut their organizations down. Like any other large organizations, their purpose has shifted from its original good intention to draw attention to environmental issues to the maintenance of their organizations. This means that they always need some target in order to sustain their organizations.

All issues related to the utilization of wild-living resources including terrestrial animals can be and are the target of the fundraising activities of mega-NGOs.

### 3.4. *Politics*

The whaling issue came to the stage of international politics at the 1972 United Nations Conference on the Human Environment in Stockholm. The famous phrase “how can you save the earth if you cannot save the whales?”<sup>8</sup> impressed the world and instantly whales became icon of the environmental movement. It is now widely believed that the United States had brought up the whaling issue at the conference in order to turn the world’s attention away from the US defoliation tactics in the Vietnam War which caused large-scale environmental destruction and a health hazard [13].

By the time of the UN Conference, many of the developed countries had already withdrawn from whaling activities because the demand for whale oil had disappeared as a result of development of cheaper alternatives such as kerosene. It should be noted that the western whaling industry had disappeared mainly because of this economic situation. Therefore, the United States and other western industrialized countries bore no domestic political cost in opposing whaling. This situation is still valid and western politicians and governments obtain political points in the environmental issues without losing anything.

Furthermore, the 1980s and the 1990s were the times of “Japan bashing” by the United States which was based on its fear of and hostility toward the rapid economic development of Japan. This political atmosphere conveniently energized the anti-whaling movement to the point that the United States passed domestic legislation allowing economic sanctions against actions the United States deemed diminishing the conservation regime of the IWC.

Under this political climate, the anti-whaling movement has been able to achieve tremendous success in the developed western countries and, as a result, the general public of these countries accepted and was fixated on the view that whales are special animals and that they should not be harvested even if they are abundant. This is one of the most successful large-scale manipulations of public thought in the history.

<sup>8</sup>Recommendation 33 adopted by the United Nations Conference on the Human Environment, 1972.

As scientific data on the whale stocks has been accumulated, it is widely accepted by experts that sustainable whaling is possible for some abundant species. However, because of the intensive lobbying from anti-whaling NGOs and the public believing whales are endangered, politicians and anti-whaling IWC member countries maintain their anti-whaling policy. This has rendered the IWC dysfunctional as an international resource management organization.

Interestingly, when the general public is provided with objective information, their views on whaling are very different from what is usually portrayed. According to a 1997 public opinion poll conducted in the US by the Responsible Management Inc., 71% of the citizen polled supported limited and controlled whaling when they were informed that the stocks of minke whales are abundant, and that the harvest will be conducted in a sustainable manner.<sup>9</sup>

However, as long as anti-whaling organizations boast of memberships in the millions, politicians and governments cannot ignore their anti-whaling views even if they know such views are based on misinformation and emotion rather than science.

### 3.5. *Culture and emotion*

As is evident from the discussions above, there are no strong arguments left against controlled and managed whaling from either a scientific or legal point of view. Instead, anti-whaling views are increasingly based on such factors as emotion and ethics. On one side, there is a view that whales are not different from any other animals and that they can be sustainably utilized as food resources. On the other side, whales are viewed as special and different from other animals and, therefore, they should not be killed. These are fundamentally different ideologies. If this difference is the basic cause of the current whaling controversy, the solutions to this dispute are very limited.

One of the solutions is a case when one value system prevails over the other completely. Another solution is the co-existence of different values with mutual acknowledgment of the other’s values, but without acceptance. Clearly acceptance of differing ideologies and cultural diversity should offer the best solution. In the case of the whaling issue, the anti-whaling side favors the first approach and attempts to achieve its aims in a manner that has rightly been referred to as “cultural imperialism” while the pro-whaling side has attempted to achieve the second option.

In the whaling dispute, the first approach that seeks to impose one’s views on those with differing views is preposterous at best. It is equivalent to a situation where people in India who do not eat beef demand with threats of economic sanctions, that people in the United States should not eat beef as well. In this case, such a demand would surely be considered as outrageous and unacceptable.

<sup>9</sup>Public Poll by Responsible Management Inc. 1997.

Equally, although some people in anti-whaling countries might be emotionally offended by the whale eating cultures, they should not attempt to impose their anti-whaling values on Japan, Norway and any other whale-eating nations.

In the whaling controversy, these cultural and emotional aspects are often mixed with resource management issues and legal issues, thereby preventing a rational analysis or understanding of this dispute. Many of those who are against whaling incorrectly assert that Japan is trying to resume commercial whaling under the name of “culture” while neglecting the need for conservation of the resources.

#### 4. Discussion: future direction of the whaling dispute

##### 4.1. Transition of IWC

The whaling dispute has undergone transition over its history. In the early stage, the issue had been mainly that of resource management. IWC members were striving to establish an effective resource management system to conserve and sustainably utilize whale resources. However, as time progresses, the whaling issue has become a conflict over the different views about whales. Countries supporting the sustainable utilization of whales regard them as resources valuable as food, while anti-whaling countries grant a special status to whales different from other animals. However, the public of the western developed world is generally ignorant about the current status of whale stocks and the transition of the nature of the dispute from a conservation issue to an issue of conflicting values. Both public discourse and the discourse at the IWC reflect this misunderstanding or a confusion of the resource management issues with “ethical” issues. Fundraising NGOs and politicians eager to win points on environmental matters take advantage of this situation and make resolution of whaling dispute more difficult.

In understanding the future directions of the whaling issue, it is most important to carefully consider if it is possible to reconcile the fundamental difference between pro- and anti-whaling interests as to the value of whales—whether whales can be regarded as food or not. If reconciliation is impossible, options for coexistence of differing values must be considered.

##### 4.2. Whaling issue as a part of the whole sustainable use issues

It should be noted that the whaling issue is not isolated from the general issues of sustainable use of natural resources. The anti-whaling “philosophy” which treats whales as a special animal jeopardizes the principle of sustainable use and that denial of this principle substantially restricts the carrying capacity of the earth. Exclusion of whales from the principle of sustainable use sets a bad precedent where the whims and fancies of some dictate what kind of food is available to the people of the world.

Unless the world agrees by consensus not to use a certain resource, the use of the resource should be permitted as long as it is sustainable, justified by good science and law. Science and law-based policy in resource management should have broader support and be less conflictive than the current situation in the whaling dispute where values and ethics are major players. Unfortunately there are similar examples. African elephants in the southern African countries are abundant while those of central African countries such as Kenya are regarded as depleted. However, this distinction is often ignored in the dispute over the use of elephants and the sustainable use of the southern African elephants, which is justified by science, has been strongly condemned based on a particular value code of some countries and NGOs.

The general public needs to understand that the IWC often ignores scientific facts and legal requirements which allow for the sustainable use of abundant whale resources. Scientific and legal mechanisms, such as the RMP, which make the sustainable use of whales possible, are already in place. These facts will mitigate the strong anti-whaling sentiments of the general public of the developed western countries. Better understanding of the whaling dispute represents the future direction toward the resolution of this contentious issue.

##### 4.3. North South problem

The whaling issue is also closely related to the North–South problem. Bluntly speaking, so-called “the world opinion” on the whaling issue as described by the CNN and the BBC are in fact the egocentric views of the largely northern hemisphere developed world. While this “world opinion” might be against whaling, many of the developing countries, which represent a large majority of the world populations, recognize the importance of the sustainable use principle without exceptions as an essential part of food security and economic development issues for their future generations. This is why many developing countries support sustainable whaling and they see the whaling issue as a symbol of North–South problems over the use of resources. They also see the whaling issue as an example of the imposition of western cultural values under the name of the globalization or modernization. The whaling issue is closely related to the right of independent countries to make independent decisions concerning the use of resources.

#### 5. Conclusion

There is no common ground between pro-sustainable use countries and anti-whaling countries in the IWC because the former seek to establish a resource management system for whales while the latter try to prohibit the utilization of whales. A middle group was formed in the past but their compromise proposals were rejected. The discourse within the IWC has become a culture of conflict preventing progress in achieving the goal of the ICRW. Winners of

this conflict are those who are using the issue as a front for fundraising and cost-free political campaigns. The resource and its users are the primary victims of the conflict but so too is the good governance and international cooperation needed for solving other global resource management and environmental issues.

Logically, there are only a few options for the future of the IWC. One option is to split the organization into two organizations; one to manage sustainable whaling and another to totally protect whales. The establishment of regional organizations such as the North Atlantic Marine Mammal Commission (NAMMCO) is a start in this direction. Another would be for members of the IWC to agree to disagree on the “values” or philosophical aspects of the issue and to agree to abide strictly to the terms of the ICRW which they have signed. Those IWC members, who for political reasons could not do so, could withdraw from the organization.

Since a 75% majority is required to change the IWC regulations that would either permit resumption of sustainable whaling or further restrict whaling, current IWC membership where neither side has enough votes to pass a proposal and both have enough to block a proposal ensures the status quo. While it has been argued that this situation is the best achievable for both sides because on the one hand, some whaling is taking place (research whaling and whaling under legal objection to the moratorium) and on the other hand, the moratorium is being maintained, the current situation is becoming increasingly unacceptable for the IWC.

The whaling dispute began with the famous slogan, “The environment can’t be saved without saving the whales”. Relating the whaling issue with the general environmental issue is in a sense correct because the whaling issue forms a part of the general issue of sustainable use. However, an alternate and more responsible interpretation of the relationship between the whaling issue and the environment is to view the whaling issue as a challenge to our political and international frameworks. Solving the whaling issue can be equated with resolving other difficult environmental issues, in particular the issue of sustainable use of living resources.

The environment can’t be protected without realizing sustainable use of abundant whale resources.

#### Appendix A. Historical transition of the whaling issue: a matrix

	1960s → 1970s → 1980s → 1990s → 2000s
Science	Uncertainty → Comprehensive Assessment → RMP → Competition with fisheries

Status of whale stocks	Some depleted → Many stocks recovering → Some stocks abundant enough to allow harvest
Law and Regulation	BWU → Individual species quotas → NMP → Moratorium → RMP → RMS (not implemented)
Economy	Whaling industry → Anti-whaling NGO fundraising → Mega-NGOs
Politics	Stockholm conference → Japan bashing → Brain washed “world opinion” → NGO influence on public policy → Dysfunctional IWC
Culture and emotion	Globalism, cultural clash, cultural imperialism → Respect for cultural diversity

BWU—Blue Whale Unit.

NMP—New Management Procedure.

RMP—Revised Management Procedure.

RMS—Revised Management Scheme.

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