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Protecting Culture and Marine Ecosystems Under the Law in Micronesia

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Abstract: Traditional culture and marine ecosystems are two important resources that are disappearing at alarming rates worldwide. Islands are places where culture and the marine environment are intertwined and offer the best locales to address this threat. Disasters such as shipwrecks and oil spills damage both culture and the environment, yet the legal system does not permit full recovery. This research advances a new tort theory of cultural and ecosystem damage to compensate victims in marine damage cases. Specifically this research investigates theories of recovery in the Federated States of Micronesia since Micronesia is in an ideal position to recognize this new damage theory. Micronesia can help establish precedents that other jurisdictions can follow to help preserve the culture and the marine ecosystems upon which they rely.

On 18 March 1994 the *Oceanus*, a Greek cargo vessel, ran aground on a ceremonial fishing reef in Yap State, Federated States of Micronesia (FSM).[1] The case was litigated, and the primary dispute was over valuation of damages. The dispute was eventually settled for $2,000,000.[2] Eight years later, on 26 December 2002, another vessel, the *Kyowa Violet*, struck another reef on a different island within the waters of Yap State.[3] The vessel spilled oil, damaged the reef, and impacted 60,000 square meters of mangroves.[4] The case went to trial, and the plaintiffs were awarded $2,950,638 for damage to the reef, mangroves, and loss of fisheries.[5] No award was given for cultural losses.[6]

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This article presents the following question: Does the law, as applied in these cases, adequately compensate victims of marine ecosystem damage in Yap State, FSM? If not, how can the legal system provide full recovery for damages to the ecosystem and culture? Since Micronesia has a legal system similar to and based on that in the United States, legal theories from the United States are persuasive but not binding. US law does not adequately compensate the plaintiffs in ecosystem damage cases, so this is an area where Micronesia should follow a different path from the United States and recognize the full extent of damages in these marine ecosystem damage cases. Specifically, Micronesia should recognize that culture is inextricably tied to marine ecosystems and warrants compensation when damaged.

Jurisprudence in the United States stresses individual rights. Individual rights are at the heart of the US Constitution and legal system. Micronesia, on the other hand, has taken a more collectivist approach in its jurisprudence. Micronesian law values culture and traditional rights in contrast to the United States. Because of the differing jurisprudence, marine ecosystem damage cases present entirely different legal situations in Micronesia and the United States. This is an area of law where Micronesia can and should depart from the United States and recognize and compensate for damage to culture and tradition, whereas the United States has refused to extend protections in these areas.

Micronesia has given special legal protections for culture and, because of its island geography, highly values its marine ecosystem. It is therefore appropriate to extend these protections to marine ecosystem damage cases. If Micronesia extends protections to these areas, it can act as a leader for other jurisdictions who equally value culture and tradition. These other jurisdictions could then look to the new protections as a model for protecting their own cultural resources.

Marine ecosystem damage cases present two types of damage. First, the ecosystem is impacted, for example, through damage to the coral reefs and mangroves. Second, separate but related to the ecosystem impacts are the cultural impacts. In Micronesia this second type of damage is especially salient because of the close relationship between culture and the marine environment. While the ecosystem damages are well-defined in law, the second area is ripe for judicial intervention. To make the plaintiffs whole in these cases, a new area of damages, one that acknowledges the relationship between marine ecosystems and culture, must be recognized.

To explore this new area of ecosystem damage theory, this article is divided into four sections. Section I examines the unique legal, environmental, and cultural background of Micronesia, showing the special nature of the injuries in these cases. Section II analyzes the specific injuries in two marine ecosystem damage cases and shows how the plaintiffs in both cases were undercompensated. Section III discusses various methods of recovery available under current law and shows why each of these is inadequate to fully compensate the plaintiffs. Section IV offers options that the government of Yap may take to avoid the problems and facilitate

future recoveries. Section V demonstrates how a decision in Micronesia to protect culture and tradition can have far-reaching effects in other jurisdictions.

I. DUE TO THE UNIQUE ENVIRONMENTAL, LEGAL, AND CULTURAL SITUATION IN MICRONESIA, MARINE ECOSYSTEMS ARE HIGHLY VALUED

Islands are special places. Due to their size, isolation from other lands, and unique environments and cultures, islands are not like other jurisdictions. Moreover, culture and marine ecosystems are inherently linked on islands. The law recognizes how island ecosystems are unique and Micronesia is in a position to extend additional protections to its important marine ecosystems.

The importance of reefs cannot be understated. Not only do they provide protection from natural disasters such as typhoons and tsunamis, but they are also a primary source of food, recreation, and cultural traditions for islanders. Reefs are some of the most important reserves of biodiversity, offer the potential for future pharmaceuticals, and remain some of the most beautiful places on Earth. Mangroves play a similar role in the life of islands. Despite their importance, reefs and mangroves are disappearing at an alarming rate worldwide.[7] The law must help defend these integral, important parts of islands.

A. Land in Micronesia Has Special Value

The Federated States of Micronesia (FSM or Micronesia) is an island nation located in the western Pacific. The FSM comprises 607 islands in an area of approximately one million square miles.[8] There are four states: Yap, Chuuk, Pohnpei, and Kosrae. This article primarily focuses on Yap State, though the laws of the four other states is highly persuasive. Yap has a land area of 46 square miles with a lagoon area of 405 square miles.[9] Lagoons and their associated reefs are essential elements of property, and the law recognizes "land" ownership extending to the lagoon and submerged reefs.[10]

In Micronesia land is a precious resource: The population of 107,008 resides on a total land mass of 271 square miles.[11] "Division of land ownership is such that individuals may own a single tree."[12] On some islands land ownership has been even divided even further: "even branches of some large breadfruit trees were individually owned."[13]

Within Yap there are two main island groups, Yap Proper and the Outer Islands. Yap Proper has the largest population and landmass. It is also the center of government and economy for Yap State. The Outer Islands, by contrast, are much smaller in size and are "either raised coral islands or atolls . . . vegetation on the Outer Islands is sparse because of porous, poor soil and high salinity both in the

ground water and from ocean spray."[14] Furthermore, the people of the Outer Islands are "distinct culturally and speak a different language from Yap Proper."[15] Land and reefs are therefore even more important to the people of the Outer Islands.

Thus, because of the small land size and limited resources, land and submerged lands, including lagoons and reefs, are especially valued in Micronesia. Micronesian law has long recognized the importance of culture and already offers significant protections. These protections offer hope to extend protections in marine ecosystem damage cases.

B. Micronesian Law Offers Specific Recognition and Protections for Tradition and Culture

Unlike jurisdictions in the United States, Micronesia has given strong legal protections to tradition and culture, which shows that the FSM values culture and tradition differently than other jurisdictions such as the United States. At the outset, the FSM Constitution specifically recognized the importance of culture. Article V of the Constitution, "Traditional Rights," provides that "[t]he traditions of the people of the Federated States of Micronesia may be protected by statute. If challenged as violative of Article IV, protection of Micronesian tradition shall be considered a compelling social purpose warranting such governmental action."[16] In Micronesia, traditional rights are fundamental rights—equally if not more valuable than individual rights. Section 1 adds, "[n]othing in this Constitution takes away a role or function of a traditional leader as recognized by custom and tradition, or prevents a traditional leader from being recognized, honored, and given formal or functional roles at any level of government as may be prescribed by this Constitution or by statute."[17] Further, the Constitution directs, "[c]ourt decisions shall be consistent with this Constitution, Micronesian customs and traditions, and the social and geographical configuration of Micronesia."[18]

Court decisions have followed the constitutional protections of culture and tradition. For example, in a reef damage case, *Pohnpei v. KSVI No. 3*, the court recognized that its decisions must be consistent with Micronesian customs and traditions, and that the legislature has the power to enact statutes to protect the traditions of the people.[19] The court went further, "It is incumbent upon Pohnpei State to preserve and respect the traditionally recognized fishing rights of the people of Pohnpei State."[20] In *Pohnpei v. KSVI No. 3*, the court found that the Constitution and former Trust Territory law "clearly was intended to protect customary and traditional fishing rights of the people of the FSM in marine areas below the normal high tide."[21]

In *Rosokow v. Bob*, the court recognized that customary and traditional use rights are a form of property right.[22] *Rosokow v. Bob* and *Pohnpei v. KSVI No.* 3, read together, mean that traditional and customary fishing rights are property rights

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that the law is intended to protect. With property rights come legal remedies for their violation.

Since these issues straddle legal and traditional systems, it is important to examine the interaction of these two systems in Micronesia. Fishing rights are not the first time the court has had to interpret the interaction of tradition and law. In *FSM v. Mudong*, the court ruled that the traditional criminal dispute resolution system existed in parallel with the constitutional legal system.[23]

> The two systems [traditional and legal], then, can be seen as supplementary and complementary, not contradictory. Each has a valuable role to perform, independent of the other. There may often be opportunities for coordination or mutual support, but there appears no reason why one system should control the other.[24]

The rule from *FSM v. Mudong* is especially applicable to marine ecosystem damage cases involving harm to traditional fishing rights. In those cases there is a traditional system that recognizes the right to fish that exists in parallel to the legal system of property rights. The state has an obligation to protect those traditional property rights and has the tools to do so. The Constitution and judicial decisions provide for the specific recognition and protection of culture and tradition in Micronesia. These protections distinguish Micronesia from the United States.

As will be shown below, US law does not adequately compensate plaintiffs in marine ecosystem damage cases due to its unwillingness to recognize the value of culture. The importance of culture and tradition as reflected in the law in Micronesia permits the FSM to depart from US legal traditions involving issues of culture and tradition.

II. MARINE ECOSYSTEM DAMAGE CASES PRESENT SPECIAL CIRCUMSTANCES

In order to assess the proper legal remedies in marine ecosystem damage cases in Micronesia, it is important to examine the types of harm suffered in reef damage cases. The facts of the *Oceanus* and the *Kyowa Violet* cases provide examples of the extent of harm. There are two main types of damage: ecosystem and cultural. The law has tools to assess ecosystem damages, but it lacks the ability to assess and compensate for cultural damages. Even in the case of ecosystem damages, the process for evaluating the extent of damage is cumbersome, time consuming, and cost prohibitive in many instances. For these reasons the law needs to be changed to achieve justice.

A. The Grounding of the Oceanus[25]

On 18 March 1994 the 225-meter Greek cargo vessel, the *Oceanus*, ran aground on the fringing reef of Satawal Island in Yap State, FSM. Satawal is an Outer Island

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of Yap State and is located about 600 miles from Yap's main island. The island had three traditional chiefs at the time of the grounding.[26] The people of Satawal, through their chiefs, sought compensation for "reef damage, pollution, a heightened threat of ciguatera, and other damages."[27]

Ecosystem Damages

As an initial step in the case, experts came in and conducted a preliminary environmental assessment.[28] The survey indicated that the ship's damage to the coral reef was 5 feet deep, 20–40 feet wide, and 300 feet long.[29] A variety of species of coral were damaged and destroyed.[30] The impact of the hull created sand and gravel that further abraded the coral surrounding the initial impact site.[31] Based on this extensive damage to the reef, the experts warned that ciguatera[32] fish poisoning could result from the grounding.[33] Ciguatera poisoning occurs in damaged reef areas when certain dinoflagellates increase in number and bioaccumulate in fish.[34] These dinoflagellates produce toxins, which, when consumed by humans, cause illness.[35]

Although the *Oceanus* struck just a section of the coral reef, the entire ecosystem was impacted. Given that coral can take many years to grow, these damages are not short term. The environment assessment, a comprehensive examination of ecosystem damage in accordance with legal procedures, was logistically difficult given the remote location. The result was that the assessment took a significant amount of time to produce and was quite expensive. The funds used for the assessment could have been better spent on remediation of the damage.

Cultural Damages

In addition to the well-documented ecosystem damages, the Satawalese people also suffered damage to their culture. The marine ecosystem plays an important role in any island culture. The ocean, lagoons, and reefs are a primary source of food, religious beliefs, and entertainment. In the case of Satawal, due to the remote nature of the island location, the marine ecosystem was even more important to culture than on other islands.

At the time of the grounding, the primary means of transportation to the island was by way of a "field trip boat" that ran a circuitous route from Yap's main island to many of the Outer Islands. The boat took about a month to run the route.

Since Satawal is so remote from the main island of Yap, the Satawalese primarily rely on subsistence fishing. In addition, they practice traditional conservation of their marine resources.[36] On many Outer Islands, including Satawal, the chief of the island is the ultimate owner of the lands, and the chief is responsible for looking after and protecting the resources for the people of the island.[37] This is akin to the public trust doctrine and is another example of the traditional system existing in parallel to the legal.

Tragically, the reef where the *Oceanus* impacted was a ceremonial fishing reef managed exclusively by the chief. This type of traditional conservation is common in many island communities and often involves beliefs in spirits, gods, and taboos.[38] The damage by the *Oceanus* presented several different cultural damages:

1. Direct attack on the culture. The destruction of the reef and its fishing grounds was a direct "attack" on the spirits that inhabit the reef and fish.

2. Effects on the subsistence fishing culture. Because of the damage to the reef and risk of ciguatera poisoning of the fish, the people of Satawal might not have been able to subsist through fishing; they might have had to rely on outside sources for food.[39] Thus, the entire lifestyle of the people of Satawal could have been changed. They would no longer be engaged in hunting for and preserving fish for food. Should the ciguatera poisoning have lasted 20 years, as some experts predicted,[40] there would have been profound changes to the Satawalese culture.

3. Loss of face for the chief. Since the chief is responsible for providing for the people of the island, the fact that the people of the Satawal may have had to rely on outside sources for food was a major failure for the chief. This "loss of face" for the chief will have profound effects on both the chief and the people.

4. Other cultural damages. It is possible that expert analysis by anthropologists could have shown further cultural damages. Since the case was settled without going to trial, this information was not obtained. The specific impacts to the Satawalese culture identified here are merely examples of the types of injuries they have suffered. These examples are designed to facilitate the discussions later in this article and are only superficial overviews of complex cultural issues.

Thus, the grounding of the *Oceanus* on the ceremonial fishing reef caused both environmental and cultural damage. Both parts of the injury would need to be compensated in order to make the people of Satawal whole. As shown in the following section, only ecosystem damages are currently compensated for under the law. Although the *Oceanus* struck a section of a ceremonial fishing reef, its impacts were felt across the island and through time. The law was not in a position to address the full extent of these damages. Fortunately the case was settled before the courts had to address these important issues.

B. The Grounding of the Kyowa Violet

The *Oceanus* grounding was not unique. Islands and shipwrecks are old companions. The *Kyowa Violet* case is important to review because it is the first case where a court was forced to consider the wider scope of damages including those to culture and tradition.

The *Kyowa Violet* incident has much in common with the *Oceanus*. In both cases there were ecosystem and cultural impacts. Unlike the *Oceanus* case, however, the *Kyowa Violet* ran aground on Yap's main island and damaged the coral

reef *and* spilled oil that damaged mangroves.[41] Further, the *Kyowa Violet* case went to trial and the court was forced to rule on the damage issues of ecosystem impacts and cultural harm.[42]

On 26 December 2002 the *Kyowa Violet*, a Panamanian-registered, 120-meter cargo ship struck a reef near the entrance of Tomil Channel near the main harbor on Yap Proper.[43] "The reefs were well-marked on the ship's navigational charts."[44] The ship proceeded into the inner harbor while oil was spilling from a gash in the hull. The ship then headed out to open sea beyond the territorial waters of Yap State.[45] The ship was inside the reef for around 30–45 minutes and spilled a significant quantity of intermediate grade bunker fuel oil (IFO 180).[46]

The oil spread through the lagoon and eventually affected an area of shoreline that includes 60,000 square meters of mangroves.[47] The cleanup effort continued for more than a year until it was ended on 3 February 2004.[48]

Governor Vincent Figir declared a State of Emergency on 2 January 2003, and the EPA (Environmental Protection Agency) had to ban "swimming, fishing, shelling, and other open water activities."[49] The court accepted an estimate that 2,258 people were affected by the ban.[50] The ban continued for almost a year and a half until the EPA lifted the ban on 26 May 2004.[51]

Experts studied the extent of the oil's damage and determined that mangroves were affected along 8,000 meters of coastline and between 5 and 10 feet deep into the mangroves, due to the tidal action.[52] Further, there was stress to the ecosystem of the inner harbor.[53] The experts noted that it would take up to 30 years for the mangroves to recover from the spill.[54] Evidence shows that even after the ban was lifted, "the average fish catch was lower by 40–50%. Crab catch declined by 50–80% and clams were not found."[55]

Thus, the damage from the *Kyowa Violet* affected both the ecosystem and the culture of those on the island.

Ecosystem Damages

When the *Kyowa Violet* struck the reef and spilled oil, it damaged the coral reef, the lagoon ecosystem, and the mangrove ecosystem. As is common in many jurisdictions, ecosystem valuation is the method by which the court assesses damages. This required significant time and expense, resources that could have been better used toward remedying the injury and compensating the plaintiffs. This method of ecosystem valuation also does not always adequately calculate the true value of damage. How much is a healthy lagoon ecosystem worth?[56] The value of the lost catch is only one element of the damage, yet it is the primary element the court considered.

Cultural Damages

In addition to the harm to the ecosystem, the court must consider the cultural harm done to the people who own, use, and rely upon the damaged ecosystem. In this case, the ban on water activities meant that traditional practices such as sub-

sistence fishing, teaching of fishing, teaching of swimming, and enjoyment of the water were curtailed. These types of injuries are not typically part of an ecosystem valuation but are still part of the harm caused by the grounding and oil spill. These are damages to the culture as distinct as damage to the environment, though the two are intertwined.

The plaintiffs in *Kyowa Violet* put forward a claim for $419,000 for "the loss of the ability to swim in the Lagoon. . . . They calculate this amount by estimating how much it would have cost to build a swimming pool."[57] Included within this claim was damage to culture because "fathers and grandfathers were unable to teach their children how to swim and other water skills."[58] The court rejected the claim because the ban on swimming only lasted 17 months and "therefore [the court] cannot conclude that there was any cultural damage by a delay in the transfer of intergenerational knowledge of swimming and other water skills."[59]

The court went further and appeared to reject a cultural damage claim. "So, even if it were possible to obtain money for damages for 'cultural' damages, which the court does not so hold, there was no cultural injury for which recovery might be sought. If Yapese custom and tradition was resilient enough to survive German and Japanese imperial rule, World War II, and the Trust Territory, it will survive the *Kyowa Violet* grounding unscathed."[60] This apparent rejection of a cultural damage theory on the basis of the resilience of the Yapese custom sets a dangerous precedent. Here the court is following the precedent used in the United States in cases such as the *Exxon Valdez*. Does Micronesia wish to treat traditional rights in the same manner as the courts in the *Valdez* case?

In a society that so clearly values culture and tradition, it is wrong to abandon projections through judicial precedent. Most legal theories of recovery came out of necessity as they were crafted by courts. This is one of those cases where the courts of Micronesia should recognize a claim for cultural damages.

III. TRADITIONAL THEORIES OF RECOVERY FAIL TO ADEQUATELY COMPENSATE FOR ECOSYSTEM AND CULTURAL DAMAGES

The courts in Micronesia are in a unique position to recognize a new area of legal protections for ecosystem and cultural damage. Given the importance of land, the ecosystem upon which its citizens rely, and culture, Micronesia should break from the legal doctrines of the United States regarding theories of damage in these cases.

The purpose of damages in tort cases is to make the victim whole for injuries sustained by the wrongful conduct of another.[61] How, in the cases involving ecosystem and cultural injury, can a court do this? This section will examine the com-

mon law theories that the courts could follow in these cases to attempt to make the victims whole. In the end, however, all of these theories will prove inadequate to fully compensate for the loss.

At the outset, the law is there to provide redress for those who suffer damages at the hands of others. "Compensatory damages are compensation to make the victim whole again."[62] In other words, the purpose of compensatory damages is to put plaintiffs in the same position they would have been in had the injuries not occurred.[63]

In order to restore a plaintiff to his or her rightful position, courts may award both pecuniary and nonpecuniary damages.[64] Courts are therefore able to award damages for quantifiable injuries such as restoration expenses and other harms such as pain and suffering.

Courts do require that plaintiffs prove their damages with reasonable certainty, and "the amount of damages need only be shown with as much certainty as the tort's nature and the case's circumstances permit."[65] Thus, a court may award both pecuniary and nonpecuniary damages proximately relating to the tortious conduct. Unfortunately for plaintiffs in Micronesia who suffer marine ecosystem damages, the traditional law fails to do its duty.

A. Traditional Measures of Damages Fail to Make the Plaintiffs Whole

This is not the first case where a court has had to consider the wider impacts of ecosystem damages in cases. There are current theories of recovery that offer some compensation, but none fully address the extent of harm to culture. The traditional inquiry for compensation in property damage cases starts with diminished market value.[66] In a typical property damage case, the plaintiffs compare the value of the property before the injury to the value after. The difference is the measure of damages.

In Micronesian marine ecosystem damage cases, it is not possible to adequately show the loss of value through the market approach. Frequently there is no market for the damaged property. Setting aside the issue of submerged lagoon/reef property, the market for property in Micronesia is extremely limited. Noncitizens are prohibited from owning land, so the "market" is artificially small. Moreover, because of the importance of land, there are virtually no traditional sales of land. "*Chuway* [Yapese for "sale"] as applied to land is considered somehow distasteful, and such transfers are extremely small in size and few in number."[67]

Thus, here there is essentially no market for land by which the court could calculate damages. This lack of a market ironically comes from the high value placed on land by the Micronesians. Courts therefore can reject this traditional measure of damages.

Courts have been faced with cases where no markets exist for property damage. In those cases, courts have employed various legal constructs to calculate damages. Courts begin by asking what would a willing buyer pay a willing seller.[68] This approach suffers from the same problem as the market approach in Micronesia. What is a reef worth in a community where no one is likely ever to sell their ancestor's traditional fishing grounds? In other cases lacking markets, courts have employed a variety of methods to estimate market value. None of those methods work in this unique environment.

B. The Cost-to-Restore Method in Special Property Cases Fails to Make the Plaintiff Whole

Courts have deviated from the diminished market value approach in cases such as those involving "special property uses." Such cases involve lands that have special uses such as churches. Rather than try and create an artificial market value for a church, the court instead relies on the cost to restore as a measure of damages.[69]

For example, in *Trinity Church v. John Hancock*,[70] Trinity Church was damaged by the construction of the John Hancock Building in Boston.[71] There the court noted "market value does not in all cases afford a correct measure of indemnity, and is not therefore 'a universal test.'"[72] The court went on to define special-purpose property to include "nonprofit, charitable, or religious organizations."[73] The court noted that when the traditional method of calculating damages falls short, "[i]n such cases, this court has been cognizant of the need for greater flexibility in the presentation of evidence relating to damages."[74] The court then allowed the cost to replace to serve as the measure of damages.

Trinity Church is important because it represents the ability for a court to permit other measures of damages when traditional methods fail. The facts of *Trinity Church* do parallel some of the religious attachment to the reefs but is not completely analogous to ecosystem damage cases in Micronesia.

A more analogous case is *Commonwealth of Puerto Rico v. SS Zoe Colocotroni*.[75] There, an oil tanker ran aground on a remote beach of Puerto Rico, spilling oil and damaging the marine environment including an area of mangroves.[76] The beach, due to its location, had little value compared to the harm suffered. The value was no more than $5,000 per acre.[77] The court, rather than limit recovery to diminished value employed the cost-to-restore measure:

> Many unspoiled natural areas of considerable ecological value have little or no commercial or market value. Indeed, to the extent such areas have a commercial value, it is logical to assume they will not long remain unspoiled. . . . A strict application of the diminution in value rule would deny the state any right to recover meaningful damages for harm to such areas.[78]

The court concluded that "the appropriate primary standard for determining damages in a case such as this is the cost reasonably to be incurred by the sover-

eign or its designated agency to restore or rehabilitate the environment in the affected area to its pre-existing condition, or as close thereto as is feasible *without grossly disproportionate expenditures*."[79] The court did not elaborate on the grossly disproportionate limitation. This does stand for the proposition that in ecosystem damage cases the court may employ the cost to restore measure as did the court in *Trinity Church*.

However, the cost to restore would not fully compensate the plaintiffs of either the *Oceanus* or the *Kyowa Violet*. In both of those cases, ecosystem damages are not as readily repaired as a church wall. Moreover, even if the ecosystem was fully restored, the damage to the culture would remain uncompensated. The court could, however, use the cost to restore as part of the damage calculation in Micronesian ecosystem damage cases. It would need to add something to this special recovery in order to make the plaintiffs whole, however.

C. Ecosystem Valuation Does Not Adequately Compensate the Plaintiffs

In ecosystem damage cases, courts have employed another measure—ecosystem valuation. In those cases, experts will be called in to calculate the value of the ecosystem before and after the injury. Economic measures such as replacement cost valuation, benefit transfer, and contingent valuation, among others, are ways to calculate damages.[80] These methods, while perhaps useful in the United States, are of significantly less value in Micronesia. As discussed earlier, markets are not well-established in Micronesia. Should this lack of markets mean that a Micronesian reef is less valuable than one in Florida?

In addition to the inherent market problems, the costs to calculate these values are prohibitive in Micronesia in many cases. Rather than hire experts, those funds could be better put to work actually remedying the harm. It is a poor use of limited resources to bring in outside experts for the sole purpose of estimating the value of the environment.

Moreover, even when the ecosystem is adequately valued by these experts, the cultural loss remains out of the damage calculation. This method, like the other traditional methods used in the United States, fails to remedy the harms suffered.

IV. A NEW APPROACH FOR MICRONESIA

Following the traditional rules from the United States will not help protect Micronesian victims of ecosystem damage. Due to the special environmental and cultural situation in Micronesia, the courts should adopt a new approach in these important cases.

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A. The Legal History of Micronesia Permits Departure from US Legal Principles

The FSM has had a long history of being ruled over by other nations. In fact, "prior to July 12, 1978, when the Trust Territory districts of Truk (now Chuuk), Ponape (now Pohnpei), Kusaie (now Kosrae), and Yap voted in a plebiscite to join under the new FSM Constitution, the people of the FSM never directly experienced constitutional government and self-government in any form as a unit."[81]

Before becoming an independent nation in 1986, Micronesia had been under Spanish, German, Japanese, and United Nations/US control. It was during this last period, following WWII, that much of the FSM's current legal traditions were created. Following the end of WWII, many of the formerly occupied Japanese islands were placed into a UN Trust Territory of the Pacific Islands.[82] The United States administered the Trust Territory and helped create the current legal system.

On 14 January 1986 US President Reagan recognized the end of the Trust Territory and the creation of the FSM as an independent country.[83] Although the FSM was, for the first time in its history, not under the control of an outside authority, it did enter into a "Compact of Free Association" with the United States.[84] Since 1986, the FSM has been free to follow its own legal path, though its legal traditions are still strongly influenced by those in the United States.

The FSM Supreme Court, in *Nix v. Ehmes*, summarized the legal influence of US legal decisions:

> this court is not bound by the decisions of courts in the United States. Nevertheless, we do agree . . . that we should give careful consideration to the thinking of courts in the United States in determining our own policy.[85]

Thus, Micronesian courts will look to the United States for persuasive precedent but are free to develop their own common law. The area of cultural protection is one of those areas where the FSM should depart from US law and perhaps become a source of persuasive precedent for other jurisdictions that value culture and traditions.

B. The Courts Should Recognize a New Damage Theory of "Ecosystem Harm" That Includes Both Environmental and Cultural Damage

Ecosystems are infinitely complex. They are difficult to value, yet we must assign value to calculate compensation when they are injured. In addition to the natural ecosystem, there is the human ecosystem. This human ecosystem depends upon the natural system. When the natural system is disturbed, so is the human one.

The legal institution must recognize the importance of marine ecosystems in order to protect them.

One method a court could employ to reach the true extent of damage in these cases it to expand the ecosystem valuation method to include other aspects.

The Coral Reefs Initiatives for the Pacific produced a good summary of total economic value of an ecosystem such as a Pacific reef. It includes:

- Bequest or Heritage Value
- Existence Value
  - *Indirect*
    - Economic services
    - Environment services
  - *Direct*
    - Commercial consumer goods
    - Non-commercial consumer goods[86]
- Option value

This approach blends both the traditional ecosystem approach with a "social-economical value" method.[87] This approach still suffers from some of the same problems as ecosystem valuation, such as the costs to produce the studies. It does, however, permit socioeconomic value such as the importance of culture. When a ceremonial fishing reef is damaged, the social fabric of the adjacent island is damaged. By allowing socioeconomic value into the equation, the law can then make plaintiffs whole. The courts could go further; in addition to a more expansive ecosystem valuation, the courts in Micronesia could also permit recovery for mental anguish.

C. Damages Could Include Mental Anguish

Given that the goal of damages is to make the plaintiff whole, courts have recognized that damages may include both quantifiable pecuniary harms and nonpecuniary but legally recognizable harms.[88] Such recovery may be for pain and suffering in personal injury cases or for infringements of constitutional rights.[89] Courts, however, have been reluctant to award pain and suffering damages in property cases. In Micronesia, the courts have followed the common law rules from the United States and require evidence of physical injury to the plaintiff or physical manifestation of emotional distress before they will award damage for mental anguish.[90]

Because cultural injury can exist without either of these two factors, most cases will not permit the courts to award damages for mental anguish. In the *Kyowa Violet* case, the court refused to consider mental anguish in its award because the plaintiffs did not show either of these two points.[91]

Courts in Micronesia could open a new exception in cultural damage cases. For example, where there is evidence that a community has been significantly im-

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pacted by a marine catastrophe, similar to the injuries in the *Oceanus* and *Kyowa Violet* cases, the court could permit recovery for mental anguish.

Courts have permitted recovery for mental anguish in environmental cases in the United States. For example, in *Sterling v. Velsicol Chemical Corp*., plaintiffs suffered contamination of their drinking water wells from a chemical company's negligence.[92] There the plaintiffs sought recovery because they suffered "physical injury, bodily harm, mental and emotional anguish, property damage, and loss and destruction of an entire community and a way of life."[93] The facts there were extreme, however. The plaintiffs had been exposed to hazardous waste in their drinking water for nearly 10 years, and many suffered physical ailments and had increased risks of cancer.[94] Under those extreme circumstances, the court permitted recovery for emotional distress.[95]

The situation in the marine ecosystem damage cases in Micronesia is not completely analogous. First and most important, the plaintiffs have not suffered direct injury. There is the risk of ciguatera poisoning and other ailments from eating contaminated fish and shellfish. These risks are not the same as unknowingly drinking contaminated water for 10 years, however. It is unlikely that the court in *Sterling v. Velsicol* would have awarded emotional damages had the facts been those of the *Oceanus* or *Kyowa Violet*. This does not mean that a Micronesian court is prohibited from doing so.

D. The Court Could Permit Recovery for Hedonic Damages in Marine Ecosystem Damage Cases

A relatively new area of compensatory damages involves recognition that loss of enjoyment of life is not fully represented in a pain and suffering award. This new area, hedonic damages, originates with Chicago economist Stan Smith in his testimony in *Sherrod v. Berry*.[96] Hedonic damages "represent recovery for loss of enjoyment of life beyond that of traditional awards for bodily injury and pain and suffering."[97]

Courts have permitted hedonic damages in a variety of cases including 1983 civil rights claims, claims by wrongfully incarcerated plaintiffs, wrongful death cases, and personal injury cases. Just as with pain and suffering, it can be difficult but not impossible for a jury (or judge) to assess the value of these damages.

In marine ecosystem damage cases in Micronesia, the court could recognize hedonic damages and permit plaintiffs to recover for the extent of the damage to their enjoyment of life. Cultural losses could be part of the value of life, especially when lives revolve around subsistence fishing. Forcing the entire population of an outer island to switch from subsistence fishing to reliance on imported food is a situation in which enjoyment of life is most certainly affected. By recognizing hedonic damages in these cases, the plaintiffs could be made partially whole again.

E. Legislative Approaches Offer an Alternative to Common Law Theories

In the case of first impression in Yap, *Kyowa Violet*, the court seemed especially disinclined to open up new theories of damages. It is understandable that courts are reluctant to extend the law into new areas. Despite this reluctance, virtually all damage theories were created by the courts. Common law remains a fertile ground for adjusting the law to provide justice in societies. Courts in Micronesia have the legal authority and capacity to remedy the injustice suffered by plaintiffs in marine ecosystem damage cases. The most viable alternative to relying on judicial activism lies with the legislative branch. The legislature could create laws in Micronesia that specifically protect marine ecosystems and the related cultural values.

For example, the legislature in Australia has crafted specific protections for the Great Barrier Reef. As a World Heritage Site, it was appropriate to protect it through legislation rather than to rely on the courts. Australia law also specifically works to protect the cultural rights of indigenous people.[98]

Micronesia could use Australia's legislation on coral reefs and cultural rights as a model upon which to adapt a system for Micronesia. The EPA could promulgate regulations to value marine resources including coral reefs, mangroves, and lagoons. The cultural aspects could be delegated to the FSM Institute for Micronesian History since it has the power to "protect and preserve the diverse cultural heritages of the peoples of Micronesia."[99] Moreover, the FSM Institute has the power to "to prepare and promulgate rules, regulations, and guidelines necessary to the effective implementation of this section."[100] Thus the EPA and FSM Institute could establish, as a matter of law, the value of these important resources. Establishing values through regulation would help address the concerns about valuation in individual cases and would put people on notice as to the value of culture. Courts would then apply these values in cases and would be relieved from the burden of judicial activism.

V. CONCLUSIONS

Marine ecosystems and culture are two of the highest valued resources in Micronesia, yet the law does not adequately protect them. Worldwide, both of these important resources are disappearing at alarming rates. Other jurisdictions such as the United States have done a poor job at protecting these resources. There is rampant criticism of the outcome of the *Exxon Valdez* case[101] and the BP Deepwater Horizon case seems to offer little hope that the US legal system will take the steps necessary to put plaintiffs in their rightful position. Micronesia is in a unique position to defend its islands from the real assaults to its resources and should not feel obligated to follow in the unfortunate path of the United States. This is a time when Micronesia should break from US legal tradition and move forward to pro-

tect its resources. Either the courts or the legislature must move forward and protect Micronesia. Waiting is not an option as this is a real and continuing threat. This is where the law must impose its power and protect victims of marine ecosystem damage.

Future research should focus on legislative and regulatory solutions. Using models from other jurisdictions, Micronesia could fashion a system that is appropriate for its specific situation. In addition to legislative drafting, the political situation of national, state, and Outer Islands should be considered. Finding a system that is appropriate for the variety of islands in Micronesia may prove challenging.

ENDNOTES

1. *Lloyds List, Lloyds Information Casualty*.
2. Settlement agreement between The People of Satawal and The M/V Oceanus, 2 (21 October 1997) (on file with the author and the Yap State Office of the Attorney General).
3. *The People of Rull ex rel. Ruepong v. M/V Kyowa Violet*, 14 FSM Intrm. 403, 409 (Yap 2006).
4. *People of Rull ex rel. Ruepong v. M/V Kyowa Violet*.
5. *People of Rull ex rel. Ruepong v. M/V Kyowa Violet*, 424.
6. *People of Rull ex rel. Ruepong v. M/V Kyowa Violet*, 422.
7. Côté et al., "Measuring Coral Reef Decline," 2005.
8. *Federated States of Micronesia 2000 Population and Housing Census Report*.
9. *Federated States of Micronesia 2000 Population and Housing Census Report*.
10. Zorn, "Federated States of Micronesia," 503.
11. *Federated States of Micronesia 2000 Population and Housing Census Report*.
12. Edwards, "Damage to Ceremonial Property."
13. Fischer, *Native Land Tenure in the Truk District*, 166.
14. *Yap State Census Report 2000 FSM Census of Population and Housing*, 1 December 2002.
15. *Yap State Census Report 2000 FSM Census of Population and Housing*, 1 December 2002.
16. Constitution of the Federated States of Micronesia, Article 5, Section 2.
17. Constitution of the Federated States of Micronesia, Article 5, Section 1.
18. Constitution of the Federated States of Micronesia, Article 11, Section 11.
19. *Pohnpei v. KSVI No. 3*, 10 FSM Intrm. 53, 66 (Pon. 2001).
20. *Pohnpei v. KSVI No. 3*.
21. *Pohnpei v. KSVI No. 3*, 66.
22. *Rosokow v. Bob*, 11 FSM Intrm. 210, 217 (Chk. S. Ct. App. 2002).
23. *FSM v. Mudong*, 1 FSM Intrm. 135, 145 (Kos. 1982).
24. *FSM v. Mudong*.
25. This section is primarily a summary of work previously published by Edwards, "Damage to Ceremonial Property."
26. Settlement agreement between The People of Satawal and The M/V Oceanus, 2 (21 October 1997) (on file with the author and the Yap State Office of the Attorney General).
27. Settlement agreement between The People of Satawal and The M/V Oceanus, 2 (21 October 1997) (on file with the author and the Yap State Office of the Attorney General).
28. Richmond, *Preliminary Environmental Assessment*.
29. Richmond, *Preliminary Environmental Assessment*.
30. Richmond, *Preliminary Environmental Assessment*.
31. Richmond, *Preliminary Environmental Assessment*.
32. Ciguatera fish poisoning occurs when the dinoflagellate *Gambierdiscus* significantly increases in population density. *Gambierdiscus* produces compounds that are toxic to humans. Through bio-

accumulation these compounds may reach toxic levels in certain species of fish such as barracuda and grouper.

33. Richmond, *Preliminary Environmental Assessment*, note 28.
34. Van Egmond, Van Apeldoorn, and Speijers, *Food and Nutrition Paper*, §7.3.1
35. Van Egmond, Van Apeldoorn, and Speijers, *Food and Nutrition Paper*, §7.3.1
36. Eaton, *Land Tenure and Conservation*.
37. Eaton, *Land Tenure and Conservation*, 14, note 34.
38. Eaton, *Land Tenure and Conservation*, 15.
39. Telephone interview with Margie Flanruw, Ph.D., Director, Yap Institute of Natural Science, October 1994.
40. Telephone interview with Margie Flanruw.
41. *People of Rull ex rel. Ruepong v. M/V Kyowa Violet*.
42. *People of Rull ex rel. Ruepong v. M/V Kyowa Violet*.
43. *People of Rull ex rel. Ruepong v. M/V Kyowa Violet*, 409–10.
44. *People of Rull ex rel. Ruepong v. M/V Kyowa Violet*, 410.
45. *People of Rull ex rel. Ruepong v. M/V Kyowa Violet*.
46. *People of Rull ex rel. Ruepong v. M/V Kyowa Violet*.
47. *People of Rull ex rel. Ruepong v. M/V Kyowa Violet*, 413.
48. *People of Rull ex rel. Ruepong v. M/V Kyowa Violet*, 411.
49. *People of Rull ex rel. Ruepong v. M/V Kyowa Violet*, 412.
50. *People of Rull ex rel. Ruepong v. M/V Kyowa Violet*.
51. *People of Rull ex rel. Ruepong v. M/V Kyowa Violet*, 412.
52. *People of Rull ex rel. Ruepong v. M/V Kyowa Violet*, 413.
53. *People of Rull ex rel. Ruepong v. M/V Kyowa Violet*, 413.
54. *People of Rull ex rel. Ruepong v. M/V Kyowa Violet*, 413.
55. *People of Rull ex rel. Ruepong v. M/V Kyowa Violet*.
56. For a discussion of the methods of ecosystem valuation, see Holcombe, "Protecting Ecosystems and Natural Resources."
57. *People of Rull ex rel. Ruepong v. M/V Kyowa Violet*, 421.
58. *People of Rull ex rel. Ruepong v. M/V Kyowa Violet*, 422.
59. *People of Rull ex rel. Ruepong v. M/V Kyowa Violet*, 422.
60. *People of Rull ex rel. Ruepong v. M/V Kyowa Violet*, 422.
61. See *Phillip v. Marianas Ins. Col.*, 12 FSM Intrm, 464, 469 (Pon. 2004); *Bank of Guam v. Nukuto*, 6 FSM Intrm. 615, 617–18 (Chk. 1994).
62. *People of Rull ex rel. Ruepong v. M/V Kyowa Violet*, 420.
63. See, for example, *Carey v. Piphus*, 435 U.S. 247, 254–55 (1978).
64. Dobbs, *Law of Remedies*, §3.1 at 211.
65. *People of Rull ex rel. Ruepong v. M/V Kyowa Violet*, 420.
66. Restatement (Second) of Torts §929(2) (1993).
67. Mahoney, *Land Tenure Patterns on Yap Island*.
68. See, for example, *Peterson v. Continental Boiler Works*, 783 S.W. 2d., 900 (Mo. 1990).
69. Dobbs, *Law of Remedies 2d*, §3.1 at 211.
70. *Trinity Church v. John Hancock Mutual Life Insurance Company*, 502 N.E.2d 532 (Mass. 1987).
71. *Trinity Church v. John Hancock Mutual Life*.
72. *Trinity Church v. John Hancock Mutual Life*, 536, citing *Wall v. Platt*, 169 Mass. 398, 405–406 (1897).
73. *Trinity Church v. John Hancock Mutual Life*, 535.
74. *Trinity Church v. John Hancock Mutual Life*, 536.
75. *Commonwealth of Puerto Rico v. SS Zoe Colocotroni*, 628 F.2d 652 (1st Cir. 1980), cert. denied, 450 U.S. 912 (1981).
76. *Commonwealth of Puerto Rico v. SS Zoe Colocotroni*, 657.
77. *Commonwealth of Puerto Rico v. SS Zoe Colocotroni*, 673.
78. *Commonwealth of Puerto Rico v. SS Zoe Colocotroni*.

79. *Commonwealth of Puerto Rico v. SS Zoe Colocotroni*, 675 (emphasis added).
80. Holcombe, "Protecting Ecosystems and Natural Resources," 85–89.
81. King, "Custom and Constitutionalism."
82. Trusteeship Agreement for the Former Japanese Mandated Islands, 18 July 1947, 61 Stat. 3301.
83. Proclamation 5564—Placing into full force and effect the Covenant With the Commonwealth of the Northern Mariana Islands, and the Compacts of Free Association With the Federated States of Micronesia and the Republic of the Marshall Islands, 51 Fed. Reg. 40,399.
84. Compact of Free Association Act of 1985, Pub. L. No. 99–239, 99 Stat. 1771 (1986).
85. *Nix v. Ehmes*, 1 FSM Intrm. 114, 119 (Pon. 1982).
86. David, Herrenschmidt, and Mirault, *Social and Economic Values of Pacific Coral Reefs*, 12.
87. David, Herrenschmidt, and Mirault, *Social and Economic Values of Pacific Coral Reefs*, 4.
88. Dobbs, *Law of Remedies 2d*, §3.1 at 211.
89. Dobbs, *Law of Remedies 2d*, §3.1 at 211.
90. *Narruhn v. Aisek*, 13 FSM Intrm. 97, 99 (Chk. S. Ct. App. 2004).
91. *People of Rull ex rel. Ruepong v. M/V Kyowa Violet*, 421.
92. *Sterling v. Velsicol Chemical Corp*., 647 F. Supp. 303 (W.D. Tenn. 1986).
93. *Sterling v. Velsicol Chemical Corp*., 308.
94. *Sterling v. Velsicol Chemical Corp*., 306.
95. *Sterling v. Velsicol Chemical Corp*., 319.
96. *Sherrod v. Berry*, 827 F.2d 195 (7th Cir. 1987).
97. Valentine, "Hedonic Damages," 544.
98. See, for example, Aboriginal and Torres Strait Islander Heritage Protection Act 1984.
99. 26 FSM Code Sec. 101.
100. [1]26 FSM Code Sec. 202(9).
101. [1]See Shaw and Bader, "Environmental Science in a Legal Context"; Wildermuth, "Legacy of *Exxon Valdez*"; Partlett and Weaver, "BP Oil Spill."

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