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# ECONOMICS AND THE ENDANGERED SPECIES ACT

Karl Gleaves and Katharine Wellman\*

## I. INTRODUCTION

The Endangered Species Act of 1973<sup>1</sup> (ESA or the Act) is one of our nation's strongest and most controversial environmental laws. Often the controversy is framed as "species versus economics." There have been numerous debates on topics such as the snail darter versus the one-hundred million dollar Tellico dam project,<sup>2</sup> sea turtles versus the economic survival of shrimp fishermen and the shrimp industry, the northern spotted owl versus thousands of timber-related jobs, and Pacific salmon in the West and Northwest versus significant economic consequences for utilities, farmers and other water users. This article focuses on the role of economics in the ESA.

The ESA is commonly seen as precluding consideration of economic factors.<sup>3</sup> This common impression is overly simplistic. Economic considerations are legitimate and appropriate at certain stages of the ESA process. Section II of this article generally describes the ESA and reviews six determinations or actions that occur as a part of the ESA process. Both the permissibility and the utility of considering economic factors at each stage are analyzed.

Faced with the need for a methodological approach that can deal with the inevitable economic questions and uncertainties encountered under the ESA process, Section III of this article considers several models. These models address the need for an explicit and objective method for evaluating economic benefits and costs associated with species preservation and

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The views expressed in this article are solely those of the authors and do not purport to represent the National Oceanic and Atmospheric Administration, the National Marine Fisheries Service, or any other agency or person.

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1. 16 U.S.C. §§ 1531-1544 (1988).

2. See *Tennessee Valley Authority v. Hill*, 437 U.S. 153 (1978) (cited in this article as *TVA v. Hill*).

3. For example, see the editorial *Species Act, Endangered*, WALL ST. J., Jan. 15, 1992, at A12; Charles Mann & Mark Plummer, *The Noah Principle*, N.Y. TIMES, May 11, 1992, at A15.

should be used at appropriate stages in the ESA process. Section III outlines several economic evaluation approaches and their potential application, using the listing of salmon in the Columbia River Basin as an illustration.

## II. LEGAL CONSTRAINTS AND CONSIDERATIONS

### *General Description of the ESA*

The ESA is jointly administered by the Secretary of Interior and the Secretary of Commerce. Most responsibilities are delegated to the Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS), respectively.<sup>4</sup> The ESA protects a group of fish, wildlife, or plants if that group is listed as an "endangered species"<sup>5</sup> or as a "threatened species."<sup>6</sup> The Act also provides for the designation of critical habitat.<sup>7</sup> Among the ESA's most significant provisions are the protections of Section 7. This section requires that federal agencies, in consultation with FWS or NMFS, ensure that their actions are not likely to jeopardize the continued existence of a listed species or to destroy or adversely modify critical habitat.<sup>8</sup> Section 9 prohibits certain actions, such as the taking of endangered fish and wildlife.<sup>9</sup> In most cases, similar restrictions apply to threatened species.<sup>10</sup> Unlike Section 7, these prohibitions are not limited to agency actions but apply to all persons subject to the laws of the United States.

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4. See the definition of "Secretary" in 16 U.S.C. § 1532(15). FWS is an agency within the Department of Interior while NMFS is a part of the National Oceanic and Atmospheric Administration, an agency within the Department of Commerce. The Secretary of Commerce has responsibility for "any species over which program responsibilities have been vested in the Secretary of Commerce pursuant to Reorganization Plan Numbered 4 of 1970." § 4(a)(2); see Reorganization Plan No. 4 of 1970, 84 Stat. 2090 (1970), reprinted in 5 U.S.C.A. Appendix 1 (Supp. 1992); see also Memorandum of Understanding Regarding Jurisdictional Responsibilities and Listing Procedures under the Endangered Species Act of 1973 (August 28, 1974) (NMFS has responsibility for most marine species and FWS has responsibility for birds, terrestrial species, and some marine species).

5. This term is defined in 16 U.S.C. § 1532(6).

6. This term is defined in 16 U.S.C. § 1532(20); the listing process is prescribed in § 4; see also 50 C.F.R. § 424 (1990).

7. See 16 U.S.C. § 1533(b)(2).

8. See 16 U.S.C. § 1536(a)(2) and 50 C.F.R. § 402 (1990).

9. See 16 U.S.C. § 1538.

10. See 50 C.F.R. § 17.31 (1991); see also *Sierra Club v. Clark*, 755 F.2d 608, 612-13 (8th Cir. 1985) (FWS may not allow the sport trapping of the threatened eastern timber wolf, absent extraordinary circumstances) and *Fund for Animals v. Turner*, No. 91-2201, memorandum opinion (D.C. Cir. filed Sept. 27, 1991) (federal defendants enjoined from authorizing the sport hunting of grizzly bears). See also DANIEL J. RÖHLF, *THE ENDANGERED SPECIES ACT: A GUIDE TO ITS PROTECTIONS AND IMPLEMENTATION* 75 (1989) ("Secretary will almost always be required to apply all of section 9's restrictions to threatened species as well").

### *Proposed and Final Listing Decisions*

Typically, the ESA process begins when the Service (FWS or NMFS) reviews the status of a species, either on its own initiative or in response to a petition for the listing of a species if the petition presents substantial information supporting the listing of the species. The Act does not specify a time frame within which the process must be completed if the Service initiates the status review. However, if the Service responds to a petition, a proposed listing decision is required within one year. A final listing decision is required within two years. These time limits can be extended in limited circumstances.<sup>11</sup>

Economics are not relevant and cannot be considered as a part of the listing process. These determinations must be made “solely on the basis of the best scientific and commercial data available”<sup>12</sup> The legislative history of the 1982 amendments is explicit, “[E]conomic considerations have no relevance to determinations regarding the status of a species”<sup>13</sup>

Consequently, the listing process is exempt from various laws and executive orders that otherwise require an economic analysis.<sup>14</sup> For example, in litigation the government indicated that former President Bush’s moratorium on rule-making did not apply to ESA listing actions.<sup>15</sup>

11. 16 U.S.C. § 1533(b)(3)(B); H.R. Conf. Rep. No. 835 97th Cong., 2d Sess. 21-22 (Sept. 17, 1982); see also § 4(b)(6) and H.R. Conf. Rep. No. 835 97th Cong., 2d Sess. 23 (Sept. 17, 1982).

12. 16 U.S.C. § 1533(b)(3)(B) (emphasis added); “solely” was added by the 1982 Amendments, Pub. L. 97-304, 102 Stat. 2306. The use of the “word ‘commercial’ is not intended, in any way, to authorize the use of economic considerations in the process of listing a species.” H.R. Rep. No. 597, 97th Cong., 2d Sess. 19-20 (1982). The term is used to allow for the use of trade data. *Id.* The legislative history of the 1982 amendments is clear that the purpose of these amendments is to ensure that “decisions in every phase of the process pertaining to the listing or delisting of species are based solely on biological criteria and to prevent non-biological considerations from affecting such decisions.” Conference Report, H.R. Rep. No. 835, 97th Cong., 2d Sess. 20 (1982).

13. Conference Report, H.R. Rep. No. 835, 97th Cong., 2d Sess. 20 (1982) (emphasis added).

14. See, e.g., Exec. Order No. 12291, 46 Fed. Reg. 13,193 (1981), reprinted in 5 U.S.C.A. § 601 (Supp. 1992); Regulatory Flexibility Act, 5 U.S.C. §§ 601-612 (1988); Paperwork Reduction Act of 1980, as amended, 44 U.S.C. §§ 3501-3520 (1988).

The Conference Report states: “[T]he economic analysis requirements of Executive Order 12291, and such statutes as the Regulatory Flexibility Act and the Paperwork Reduction Act, will not apply to any phase of the listing process.” Conference Report, H.R. Rep. No. 835, 93rd Cong., 2d Sess. 20 (1982).

Similarly, listing actions should not be subject to the requirements of Exec. Order No. 12612, 52 Fed. Reg. 41,685 (1987), reprinted in 5 U.S.C.A. § 601 (Suppl. 1992). But see Exec. Order No. 12630, 53 Fed. Reg. 8,859 (1988), reprinted in 5 U.S.C.A. § 601 (Supp. 1992) and Appendix IV of the Att’y Gen. Suppl. Guidelines for the Dept. of Interior (March 29, 1989) (Takings Implications Assessment required for most listings under the ESA). See also Att’y Gen. Suppl. Guidelines for the Dept. of Commerce (April 23, 1990).

15. See the declaration of Bruce Blanchard and attached exhibits filed by the Government on Apr. 3, 1992, in *Carleton v. Lujan*, No. 92-0800 (D.D.C. complaint and motion for temporary restraining order filed Apr. 2, 1992).

In addition, the ESA listing process is exempt from the requirements of the National Environmental Policy Act (NEPA).<sup>16</sup>

### *Proposed and Final Critical Habitat Designations*

Under the ESA, critical habitat should be designated at the time of the final listing of a species, but can be delayed up to one year.<sup>17</sup> The first step in designating critical habitat consists of defining the physical and biological features essential to the conservation of the species and determining whether these features need special management considerations and protections.<sup>18</sup>

The designation of critical habitat also involves a second step in which areas may be excluded if the benefits of the exclusion outweigh the benefits of specifying the area as part of the critical habitat.<sup>19</sup> Economics should be considered in the critical habitat designation process. "The Secretary shall designate critical habitat on the basis of the best scientific data available after *taking into consideration the economic impact*, and any other relevant impact, of specifying any particular area as critical habitat."<sup>20</sup>

Clearly, the consideration of economic impacts is required prior to the final designation of critical habitat. Despite the language, the joint NMFS and FWS regulations appear to permit proposed designations to go forward prior to completion of the economic analysis.<sup>21</sup> FWS was threatened with litigation in the spotted owl controversy because of its failure to provide adequate notice and opportunity for public comment on the economic analysis component of the proposed critical habitat designation.<sup>22</sup> Subsequently, FWS re-proposed critical habitat including an

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16. National Environmental Policy Act of 1969 § 102, 42 U.S.C. § 4332 (1988). See *Pacific Legal Foundation v. Andrus*, 657 F.2d 829 (6th Cir. 1981) (Secretary does not have discretion to consider factors specified under NEPA in the ESA listing process). See also NOAA Administrative Order 216-6 Environmental Review Procedures (August 6, 1991) at 14; 49 Fed. Reg. 29,652 (1984). In addition, see FWS Guidance on the Application of NEPA to the ESA and MMPA (September 10, 1991); 48 Fed. Reg. 49,244 (1983).

17. 16 U.S.C. § 1533(b)(6). Until recently, many critical habitat designations were delayed using the rationale that critical habitat was not determinable at the time of listing. A recent decision indicates that delays are appropriate only under limited circumstances and that this one-year extension should not be considered automatic. *Northern Spotted Owl v. Lujan*, 758 F. Supp. 621 (W.D. Wash. 1991).

18. 16 U.S.C. § 1532(5)(A); see also 50 C.F.R. § 424.12 (1991). Critical habitat includes specific areas within the geographic area occupied by the species at the time of listing; not all these areas will be designated nor will the designation include areas outside these areas, except under certain circumstances. § 3(5)(A)(i) and (C).

19. See 50 C.F.R. § 424.19 (1991).

20. 16 U.S.C. § 1533(b)(2) (emphasis added).

21. See 50 C.F.R. § 424.16; this issue also is discussed in the preamble material at 49 Fed. Reg. 38,906-7 (1984).

22. 56 Fed. Reg. 20,816 (1991).

analysis of economic impacts.<sup>23</sup>

Additionally, various laws and executive orders that require an economic analysis apparently apply to the designation of critical habitat.<sup>24</sup> While FWS policy indicates that NEPA does not apply to critical habitat designation, a recent district court decision held that such designations are not exempt from NEPA.<sup>25</sup>

While critical habitat designations must involve the consideration of economic impacts, evaluating the extent of these economic impacts is problematic. As interpreted by the Service, the critical habitat designation, by itself, may have little direct economic impact. Most of the economic consequences are derived from listing the species and are not directly attributable to the critical habitat designation. When a species is listed, prohibitions against the taking of that species usually become effective, and the no-jeopardy standard of Section 7 becomes applicable to agency actions. The prohibition on destroying or adversely modifying critical habitat, as interpreted by regulation, provides protection that is very similar, if not the same, as the protection provided by the no-jeopardy standard.<sup>26</sup> In addition, the prohibitions under Section 9 and associated regulations often protect habitat, regardless of whether the habitat is officially designated as critical.<sup>27</sup> The fact that the designation of critical

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23. 56 Fed. Reg. 40,002 (1991); the final designation of critical habitat was published at 57 Fed. Reg. 1,796 (1992) (to be codified at 50 C.F.R. § 17.95(b)).

24. After noting that Exec. Order No. 12291 and statutes such as the Regulatory Flexibility Act and the Paperwork Reduction Act would not apply to the listing process, the Conference Report states that "[t]he standards of the Act relating to the designation of critical habitat remain unchanged." Conference Report, H.R. Rep. No. 835, 93rd Cong., 2d Sess. 20 (1982). It appears that it was the policy of the Department of Interior to comply with this executive order and these statutes in evaluating alternative critical habitat designations at the time of the 1982 Amendments. See H.R. Rep. No. 567, 93rd Cong., 2d Sess. 20, 41 (1982).

25. *Douglas County v. Lujan*, No. 91-6423, (D. Ore., complaint filed Oct. 4, 1991) Dec. 22, 1992 and *Trinity County Concerned Citizens v. Lujan*, No. 92-1194 (N.H.J.) (D.D.C. complaint filed May 27, 1992). NOAA lists such designations as categorical exclusions under NEPA. See NAO 216-6 (Aug. 6, 1991) at 12 and 49 Fed. Reg. 29,652 (1984). Nonetheless environmental assessments were prepared for two recent proposals for the designations of critical habitat. 57 Fed. Reg. 36,626 (1992). 57 Fed. Reg. 57,051 (1992).

26. Compare the definitions of "destruction or adverse modification" and "jeopardize the continued existence of" in 50 C.F.R. § 402.02 (1990). Several cases have discussed critical habitat, but in most situations agency actions were viewed as both jeopardizing the continued existence of the species as well as destroying or adversely modifying habitat. See *TVA v. Hill*, 437 U.S. 153, and *Nat'l Wildlife Fed'n v. Coleman*, 529 F.2d 359 (5th Cir. 1976), *reh'g denied* 532 F.2d 1375, *cert. denied* 429 U.S. 979 (1976).

27. In a series of palila bird cases, courts interpreted the prohibition on taking in a manner that appears to provide redundant protection for critical habitat. The plaintiffs in these cases argued that the adverse modification of a species' habitat constituted a taking under Section 9 of the ESA. Specifically, the plaintiffs claimed that state-authorized grazing by feral sheep and goats in the habitat area of the endangered palila bird was illegal. This claim was upheld. Critical habitat was not designated for the palila bird; even if designated, the Section 7 critical habitat protections would not

habitat provides for little or no additional protection has been criticized by commentators.<sup>28</sup>

In some cases, the economic impact of critical habitat designation, apart from the impact of the listing and other protections provided for the species, can be expected to be minimal.<sup>29</sup> For example, the final listing of the Steller sea lion as a threatened species under the ESA also prohibited shooting at these animals and provided for a three-mile no-approach buffer area around certain key rookery sites in order to protect the animals from unauthorized takings.<sup>30</sup> Another rule restricted trawl fishing around key rookeries to conserve the species and to ensure that commercial fishing was not likely to jeopardize the species' continued existence.<sup>31</sup> The three-mile buffer and ten-mile no-fishing zones may have significant economic repercussions, but these are consequences of regulations to prevent takings of Steller sea lions and to ensure agency actions will not jeopardize this species. The economic impacts are not the result of critical habitat designations; critical habitat has not been designated for this species. While economics must be considered in designating critical habitat, the relevance and importance of economics in the designation process may be limited.

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have applied to the state's actions unless there was some federal involvement. *See Palila v. Hawaii Dept of Land and Natural Resources*, 471 F Supp. 985 (D. Hawaii 1979), *aff'd* 639 F.2d 495 (9th Cir 1981), and *Palila v. Hawaii Dep't. of Land and Natural Resources*, 649 F Supp. 1070 (D. Hawaii 1986), *aff'd* 852 F.2d 1106 (9th Cir. 1988).

28. *See* D. ROHLF, *THE ENDANGERED SPECIES ACT: A GUIDE TO ITS PROTECTIONS AND IMPLEMENTATION*, 151-152 (1989) (regulatory interpretation is "greatly in error").

29. *See* the proposed designation of critical habitat for winter-run chinook salmon in the Sacramento River. 57 Fed. Reg. 36,626 (1992). NMFS concluded that "[t]he economic and other impacts resulting from this critical habitat designation, over and above those arising from the listing of the species under the ESA, are expected to be minimal." *Id.* *See also* the proposed designation of critical habitat for Snake River sockeye salmon, Snake River spring/summer chinook salmon and Snake River fall chinook salmon at 57 Fed. Reg. 57,051 (1992).

In contrast, FWS in the final designation of critical habitat for the northern spotted owl "assumed that of the total reduction of timber sales, 70 percent would be due to listing impacts (application of the jeopardy standards and take prohibitions) and 30 percent would be due to Timber Assessment Market Model (TAMM) developed by the Forest Service and used to estimate the market effects of owl protection measures." 57 Fed. Reg. 1,815 (1992). The adequacy of the economic analysis is under litigation. *Trinity County Concerned Citizens v. Lujan*, No. 92-1194 (N.H.J.) (D.D.C. complaint filed May 27, 1992). In *Douglas County v. Lujan*, No. 91-6424 (D. Ore., filed Dec. 22, 1992). The court found that FWS adequately considered relevant economic issues associated with the critical habitat designation.

30. 55 Fed. Reg. 49,204 (1990).

31. 57 Fed. Reg. 2,683 (1992) (imposed 10-mile no-trawl zones around 37 sea lion rookeries with expanded prohibitions to 20 miles around five rookeries from January to April). *See also* emergency rule at 56 Fed. Reg. 28,112 (1991).

*Jeopardy Determinations and the Mandate to Avoid Jeopardy*

Once a species is listed under the ESA, the mandatory provisions of Section 7(a)(2) apply<sup>32</sup> Federal agencies are required to ensure that their actions are not likely to jeopardize the continued existence of listed species. Similarly, once critical habitat is designated, agencies must avoid the destruction or adverse modification of these areas. The no-jeopardy obligation and the duty to avoid destruction or modification of critical habitat are to be carried out in consultation with NMFS or FWS.<sup>33</sup> In making determinations under Section 7(a)(2), an agency must use "the best scientific and commercial data available."<sup>34</sup> Consequently, FWS and NMFS do not consider economics in making jeopardy determinations as a part of the Section 7 consultation process.<sup>35</sup>

The Supreme Court decision in *TVA v Hill* indicated that economic consequences are irrelevant to the Section 7 mandate to avoid jeopardy "The value of this genetic heritage is, quite literally, incalculable."<sup>36</sup> The Court went on to state:

Quite obviously, it would be difficult for a court to balance a sum certain - even \$100 million - against a congressionally declared 'incalculable' value, even assuming we had the power to engage in such a weighing process, which we emphatically do not.<sup>37</sup>

Thus, economic factors are irrelevant in making jeopardy determina-

32. Certain aspects of the Section 7 process begin with a proposed listing or critical habitat designation. At that point, the conferencing procedures apply to certain actions by federal agencies, and FWS or NMFS may make advisory recommendations concerning methods to minimize or avoid adverse effects. *See* 16 U.S.C. § 1536(a)(4).

33. *See* 16 U.S.C. § 1536(a)(2).

34. 16 U.S.C. § 1536(a)(2).

35. Thus, Exec. Order No. 12291, 46 Fed. Reg. 13,193 (1981), *reprinted in* 5 U.S.C.A. § 601 (Suppl. 1992) and statutes such as the Regulatory Flexibility Act, 5 U.S.C. §§ 601-612 (1988) and the Paperwork Reduction Act of 1980, as amended, 44 U.S.C. §§ 3501-3520 (1988) would not be applicable to the issuance of biological opinions. Similarly one could argue that NEPA would not apply to the issuance of biological opinions by the service agencies. *But see* FWS Guidance on the Application of NEPA to the ESA and MMPA (Sept. 10, 1991); and 48 Fed. Reg. 49,244 (1983) (biological opinions subject to categorical exclusion under NEPA). *See also* Exec. Order No. 12630, 53 Fed. Reg. 8,859 (1988), *reprinted in* 5 U.S.C.A. § 601 (Suppl. 1992) and Appendix IV of the Att'y Gen's Supp. Guidelines for the Dept. of Interior (March 29, 1989) (Takings Implications Assessment required for most jeopardy opinions issued under the ESA). *See also* Att'y Gen's Supp. Guidelines for the Dept. of Commerce (April 23, 1990).

In addition, one could argue that the role of the service agency is advisory and the final decision to go forward with the project rests with the action agency, not FWS or NMFS (unless, of course, the service agency is also the action agency). *See Nat'l Wildlife Fed'n v. Coleman*, 532 F.2d 359 (5th Cir. 1976), *reh'g denied* 532 F.2d 1375, *cert. denied* 429 U.S. 979 (1976). Consequently, any obligation under NEPA or under another statute or executive order rests with the action agency, not the service agency.

36. *TVA v. Hill*, 437 U.S. at 178, (citing H.R. Rep. No. 412, 93d Cong.).

37. *TVA v. Hill*, 437 U.S. at 188-89.



tions under Section 7(a)(2); likewise, the no-jeopardy mandate does not provide for the consideration of economic factors, except in the extraordinary situation where an exemption is sought from the Endangered Species Committee.

### *Alternatives to Avoid Jeopardy and the Duty to Conserve*

As a practical matter, economic considerations are important in the evaluation of alternatives that are acceptable under the ESA. Normally, economic factors are considered when an agency proposes an action, and if applicable, economic and environmental documents are prepared as a part of the administrative process. During consultation with FWS or NMFS, the impact of the proposed action on endangered and threatened species and their habitat is evaluated, and sometimes the proposed action is modified to mitigate adverse impacts; economics factors are often considered in this process. While language in some earlier cases suggested the duty to conserve species under Section 7(a)(1) imposed a stringent obligation, a more recent decision indicates that there is a large degree of latitude in fulfilling this duty if that action is consistent with a biological opinion issued through the consultation process.<sup>38</sup> Provided the action agency complies with the no-jeopardy mandate and does not adversely modify critical habitat, the action agency has considerable discretion in choosing a preferred alternative. Economics may be considered in making this choice.

If a biological opinion concludes that an agency action is likely to jeopardize a listed species or to destroy or adversely modify critical habitat, the Secretary must suggest "reasonable and prudent alternatives" to avoid this consequence.<sup>39</sup> Regulations define "reasonable and prudent alternatives" as alternative actions that are "economically and technologically feasible."<sup>40</sup> In fact, jeopardy opinions are relatively infrequent.<sup>41</sup> But even with a jeopardy opinion, nothing restricts or prohibits an agency from considering economic factors in selecting among the acceptable reasonable

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38. *Pyramid Lake Paiute Tribe v. U.S. Dep't of the Navy*, 898 F.2d 1410 (9th Cir. 1990). See also *Carson-Truckee Water Conservation Dist. v. Watt*, 549 F Supp. 704 (D. Nev. 1982), modified 741 F.2d 257 (9th Cir. 1984), cert. denied, 470 U.S. 1083 (1985); and *Nat'l Wildlife Fed'n v. Nat'l Park Service*, 669 F Supp. 384 (D. Wyo. 1987).

39. 15 U.S.C. § 1536(b)(3)(A).

40. 50 C.F.R. § 402.02 (1991).

41. See DONALD BERRY, LESLIE HARROUN, AND CHRISTINE HALVORSON, FOR CONSERVING LISTED SPECIES, TALK IS CHEAPER THAN WE THINK: THE CONSULTATION PROCESS UNDER THE ENDANGERED SPECIES ACT, 4, 9 (Feb., 1992) (during the five-year period FWS conducted 71,560 informal and 2,000 formal consultations, of which only 350 had jeopardy conclusions; during this five-year period, NMFS conducted 788 informal and 248 formal consultations, with only three opinions having jeopardy conclusions).

and prudent alternatives. Rarely are the alternatives viewed as so costly or undesirable that the action is "blocked" by the Section 7 process.<sup>42</sup> Obviously, an evaluation of cost is an important consideration in deciding whether to cancel an action.

### *The Endangered Species Committee and the Exemption Process*

In response to *TVA v Hill*, Congress created an Endangered Species Committee, in the 1978 ESA amendments and provided a mechanism for obtaining an exemption from the no jeopardy mandate of Section 7.<sup>43</sup> Economic factors are considered in the exemption process.

The exemption process begins upon application to the Endangered Species Committee, following completion of the normal consultation process. This Committee, sometimes referred to as the "God Squad," consists of the Secretaries of Agriculture, Army, and Interior, the Chairman of the Council of Economic Advisors, the Administrator of EPA, the Administrator of NOAA, and an individual representing the affected state. Five members must vote in person to allow for an exemption.

Before the Endangered Species Committee grants a waiver, it must determine, on the record that: (1) there are no reasonable and prudent alternatives, (2) the benefits of such action clearly outweigh alternative courses of action that would preserve the species or its critical habitat, and the action would be in the public interest, and (3) the action is of regional or national significance.<sup>44</sup> After making those determinations, the Committee is required to establish reasonable mitigation and enhancement measures to minimize adverse effects on the species and habitat concerned.<sup>45</sup>

Since the creation of the exemption process, the Endangered Species Committee has voted in only three cases: the Tellico Dam project, the Graylocks dam project, and, most recently, on certain timber sales in the Pacific Northwest. An exemption was granted for the Graylocks project and for a limited number of timber sales. Legislative action authorized completion of the Tellico project. Because the exemption process has been

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42. The study noted that during the five-year study period:

FWS has only positively identified 18 projects or activities that received jeopardy biological opinions and were ultimately blocked, cancelled or terminated due to § 7. The vast majority of the remaining jeopardy opinions applied to activities that were completed ultimately through the adoption of "reasonable and prudent alternatives" or modifications that avoided violating the ESA.

*Id.* at ii. In addition, FWS identified 35 cases pending or put on hold for unknown reasons; NMFS identified one block action and one action on hold. *Id.* at 4-9.

43. 16 U.S.C. § 1536(e). See 50 C.F.R. Parts 450-453 (1990).

44. 16 U.S.C. § 1536(h)(1)(A)(i) - (iii).

45. 16 U.S.C. § 1536(h)(1)(B).

used so rarely, little information is available on how it functions. In 1991, the Bureau of Land Management (BLM) applied to the Endangered Species Committee for an exemption concerning timber sales on 44 tracts of land in the Pacific Northwest. According to FWS biological opinions, these timber sales were likely to jeopardize the continued existence of the northern spotted owl. The Secretary of Interior determined that the BLM application was complete, and hearings were conducted on this matter. The Endangered Species Committee issued an exemption for 13 of the 44 timber sales subject to compliance with specific mitigation requirements.

Although silent with respect to other laws and executive orders that may require an economic analysis, the ESA indicates that an environmental impact statement must be prepared, either prior to, or as a part of the exemption process.<sup>46</sup>

46. The ESA exemption provisions include:

An exemption decision by the Committee under this section shall not be a major Federal action for the purposes of the National Environmental Policy Act of 1969 (42 U.S.C. 4231 et seq.): *Provided, That an environmental impact statement which discusses the impacts upon endangered species or threatened species or their critical habitats shall have been previously prepared with respect to any agency action exempted by such order*

§ 7(k) (emphasis added).

The legislative history is even more explicit. The underscored language was added by Amendment No. 3129 to S. 2899, introduced by Senator Nelson. In response to this amendment, Senator Culver, the sponsor of S. 2899, stated:

Mr. Culver: Madam President, if I could just say to the Senator from Wisconsin I respect the intent of his amendment. It does seem to me difficult to imagine a situation actually arising, however, where under the very exhaustive and elaborate consultative processes that are required under this bill a project in irreconcilable conflict could actually get that far along in the process without an EIS being prepared.

But I do believe the amendment essentially corresponds with the intent of the committee, and I do not personally have any objection to it.

S. Rep. No. 874, 95th Cong., 2d Sess. (1978), *reprinted in* Cong. Research Service, 97th Cong., 2d Sess., A Legislative History of the Endangered Species Act of 1973, (Comm. Print 1982) at 1026.

Senator Nelson admitted the failure to prepare an EIS would be an unusual case, even a rare case, but noted the existence of a special exemption from the requirements of NEPA for certain dredge and fill projects in wetlands under Pub. L. 92-500. In other cases, the requirement to prepare an EIS would not be an additional requirement. *See Id.* at 1026-27

Consequently, it is argued that the Endangered Species Committee can not go forward with the exemption process unless an adequate EIS has been prepared. *See* memo from Pamela Baldwin, Congressional Research Service to Committee on Merchant Marine & Fisheries 6 (May 12, 1992). In contrast, in the recent spotted owl controversy, Counsel for the Endangered Species Committee opined:

The exemption process was created to allow for the expeditious consideration of whether economic factors justify exemption from the requirements of the ESA for a given action. An interpretation of section 7(k) that would require the [Endangered Species] Committee to conduct a review of the adequacy of environmental documentation under the provisions of NEPA, or an interpretation that would require the Committee to conduct an EIS, clearly is inconsistent with this purpose.

Memorandum from T. Sansonetti, Interpretation of § 7(k) with respect to the National Environmental Policy Act (Apr. 28, 1992) at 8. This issue may be resolved in litigation. *Portland Audobon Society v. The Endangered Species Committee*, No. 92-70436 (9th Cir. complaint filed June 11, 1992).

Although the exemption process is atypical, it represents a situation where economic considerations can be used to justify activities that may jeopardize the continued existence of endangered and threatened species.

### *Recovery Plans and Management Actions*

The ESA requires the Secretary to develop and implement recovery plans.<sup>47</sup> Timing is not specified by statute although certain priorities are established. A high priority is specified for "species that are, or may be, in conflict with construction or other development projects or other forms of economic activity"<sup>48</sup>

Economic considerations are relevant to the recovery planning process. However, it is important to distinguish between the development and content of a recovery plan and the implementation of specific management measures to achieve a plan's goals. With respect to the former, the Conference Report on the 1988 Amendments states that "the development and content of recovery plans will continue to be based solely on biological considerations."<sup>49</sup>

Recovery plans are to include "site-specific management actions" and "estimates of the time and costs required to carry out those measures needed to achieve the plan's goal and to achieve intermediate steps toward that goal."<sup>50</sup> NMFS or FWS is responsible for the development and implementation of a recovery plan for a listed species, although the responsibility for many of the specific management actions and conservation measures may rest with other agencies, with the Service acting in a consulting capacity

A recovery plan is subject to public notice and an opportunity for

47. 16 U.S.C. § 1533(f).

48. 16 U.S.C. § 1533(f)(1)(A).

49. H.R. CONF. REP. NO. 100-928, 100th Cong., 2d Sess (1988), printed in 134 CONG. REC. H7,719 (1988). See also floor debate concerning Amendment 2724, a proposal to require a comprehensive economic analysis as a part of a new or revised recovery plan. 134 CONG. REC. S10,165-69 (1988). In this floor debate, Senator Mitchell argued:

It is especially critical to the scientific credibility of the endangered species program that decisions about when to delist a species as recovered be based on the biological status of the species, not on how much it will cost to restore its numbers or whose economic interests it may affect.

It is essential to the act's integrity that recovery goals for the number of individuals or populations needed to ensure a species existence be based solely on the best available scientific data.

134 CONG. REC. S10,166 (1988). Amendment 2724 was withdrawn.

50. 16 U.S.C. § 1533(f)(1)(B)(i) - (iii) (emphasis added); it is not clear whether these "costs" are limited to the actual cost of implementing specific measures or could include indirect costs and expenses resulting from recovery efforts.

public comment prior to final approval.<sup>51</sup> The issues of whether a complete economic analysis is required and whether executive order 12291, executive order 12612, or executive order 12630, or the Regulatory Flexibility Act, Paperwork Reduction Act or NEPA would apply to the plan, or only when the plan is implemented is unresolved. If the plan includes only research objectives, goals, and general recommendations, most of the requirements and procedures of these various executive orders and acts may be inapplicable.<sup>52</sup>

Implementation of management actions, especially regulatory actions, probably would need an economic analysis and would be subject to various executive orders and statutes requiring the preparation of this type of analysis. The ESA does not specify a schedule for implementing management measures. Management actions could be taken as a part of the recovery planning process, or under other statutory authority.<sup>53</sup>

In general, consideration of economics and other factors may be most important and relevant during the recovery planning process when specific management and conservation measures are being implemented. While the mandate to avoid jeopardy establishes a legal minimum, recovery planning and conservation management allow more latitude. The consideration of options should involve the evaluation of broader social and economic costs and benefits as well as the narrow evaluation of the impact on the listed species.

### III. ECONOMIC ANALYSIS

#### *Informal Economic Evaluations and the Need for an Objective Methodology*

While the law restricts the role of economics in certain decisions and determinations under the ESA, such as the listing process, informal economic evaluations and assessments often are conducted and published.<sup>54</sup> Special interest groups often weigh the costs and benefits of a

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51. 16 U.S.C. § 1533(f)(4).

52. For example, see FWS Guidance on the Application of NEPA to the ESA and MMPA (September 10, 1991); and 48 Fed. Reg. 49,244 (1983) (recovery plans usually subject to categorical exclusion under NEPA).

53. An action agency may utilize broad authority under the ESA in conjunction with its other statutory authority to implement management measures. See 16 U.S.C. §§ 1531(b) and (c), 1532(3), 1533(d) and 1536(a)(1); see also the Turtle Excluder Device (TED) regulations, 50 C.F.R. § 227.72 (1990), 52 Fed. Reg. 24,244 (1987) (NEPA applicable and Supplemental Environmental Impact Statement (SEIS) prepared, Exec. Order No. 12291 applicable but TED regulations not a "major rule" so no regulatory impact analysis prepared, and Regulatory Flexibility Act applicable and Regulatory Flexibility Analysis and Regulatory Impact Review (RFA/RIR) prepared).

54. For example, see EUGENE H. BUCK ET AL., PACIFIC SALMON AND STEELHEAD: POTENTIAL IMPACTS OF ENDANGERED SPECIES ACT LISTINGS (Congressional Research Serv. March 15, 1991), see especially the section entitled "Potential Economic and Other Impacts" at 12-21.

proposed listing. While the evaluations occur outside the formal listing process, these groups often attempt to influence ESA decisions based on their economic assessments.

Unfortunately, such assessments are often based on the inappropriate use of economics, or the results of those assessments are presented out of context. One of the most frequent errors is the use of regional economic impact measures to represent overall implications to society resulting from an ESA listing decision. Often costs are evaluated only in the short term and in isolation, without consideration of associated economic benefits. In other cases, these assessments are unsophisticated or erroneous. If, in fact, economic factors play a role in the politics of the ESA process, then there is an obvious need for a rational application of economic analysis to ESA decisions, using a comprehensive and consistent approach.

As suggested in Section II, even though economic factors can not legally influence the decision to list a species or the obligation to avoid jeopardy, the ESA provides for the consideration of these factors in the designation of critical habitat, and perhaps more importantly, in the implementation of recovery planning and specific management measures. In the case of Columbia River salmon, for example, an economic analysis would explore the costs and benefits associated with alternative actions to promote recovery such as habitat protection, efforts to maximize natural spawning and promote propagation, and river management measures to facilitate upstream and downstream migration.

In terms of economic efficiency, the objective is to promote the recovery of the salmon resource at minimum economic cost to society. For example, certain minimum river flows maybe essential for the survival of listed salmon. Additional flows may promote recovery. In evaluating the efficacy of flows, the survival of juvenile fish and other environmental and economic benefits resulting from increased flows must be evaluated in the context of additional environmental and economic (or opportunity) costs. These costs would include direct capital, operation, and maintenance costs, as well as the opportunity costs of removing resources from existing uses. More specifically, these costs might include the loss of hydro-electric energy production resulting from increased flows, and would require production from alternative energy sources, such as increased reliance upon fossil fuels, nuclear, solar, geothermal, wind power generation, or energy conservation techniques.<sup>55</sup> If these costs are overlooked and economic efficiency is neglected in the implementation of the recovery plan, or other management actions to promote recovery, it is doubtful if the

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55. Columbia River hydropower production provides electricity equal to the needs of 12 cities the size of Seattle; completely replacing this power capacity would require 15-20 coal fired or nuclear plants.

objective will be achieved at a minimum economic cost to society

### *Measuring Economic Implications*

There are four types of economic evaluation that may be applied to endangered species recovery decisions. They are, in order of decreasing economic analytical sophistication: (1) benefit-cost analysis, (2) cost-effective analysis, (3) cost-sensitive analysis, and (4) cost-oblivious analysis.<sup>56</sup> An initial decision must determine which of these models is most appropriate, given the environmental conditions, knowledge about the effectiveness of the actions, and the implicit budget constraints for carrying out the specified goals. From an economic perspective, the benefit-cost model is the most sophisticated and appropriate analysis for most situations. The other models represent alternatives in an imperfect economic world; the biases and omissions of these models must be noted in any assessment or evaluation.

### *Benefit-Cost Analysis*

A benefit-cost analysis (B/C) is a classical, fully monetized approach to measuring social welfare of development plans. It is the preferred alternative when economic efficiency is the major concern. B/C is best carried out in a "with versus without" framework to determine the social welfare implications of a proposed undertaking.

Many biologists and environmentalists are persuaded that B/C has no place in wildlife management planning because of the difficulty of attaching dollar values to non-market resources. For example, it may be difficult to place an economic value on aesthetic considerations or a species' continued existence.<sup>57</sup>

Nonetheless, B/C has a place in the evaluation of projects that are unaffected by the ESA or other legislative mandates or where wildlife concerns are of secondary importance. In addition, B/C is appropriate in evaluating conservation and recovery efforts that are economically motivated.

### *Cost-Effective Modelling*

Cost-effective modelling generally is appropriate when applied to

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56. Norman K. Whittlesey and Philip R. Wanderschneider, *An Economist's View of Salmon Recovery: The Case of the Columbia River Basin* at 7 (1990) (Unpublished manuscript available in authors files). See also W. Yallup, et. al., *Making Economic Information More Useful for Salmon and Steelhead Production Decisions* at 4 (1984) (NOAA Tech. Memorandum NMFS F/NWR-8); Norman K. Whittlesey and Philip R. Wanderschneider, *Salmon Recovery as Viewed by Two Economists*, 2 CHOICES 3 (1992).

57. For example, see BRYAN G. NORTON, WHY PRESERVE NATURAL VARIETY? (1987).

legislatively determined goals where there are alternative means for achieving that goal. Following this paradigm, the specific goal or project benefits have been evaluated through the political process and found to be worth undertaking. Cost-effective modeling avoids the need to evaluate benefits (especially for non-market resources) by establishing the desired objective *a priori* and by searching for the lowest cost methods for achieving this objective. This model facilitates comparisons among available alternatives. For example, this approach would provide a mechanism to eliminate options that cost more than equally and more efficient alternatives, or to eliminate options that cost the same but are not as efficient as other alternatives.

A cost-effective model may be particularly useful in evaluating acceptable alternatives to avoid a jeopardy situation. In addition, a cost-effective model may facilitate comparisons among alternative recovery options. This approach would allow decision makers to build a "frontier" of cost-effective actions that would highlight the marginal costs associated with additional recovery efforts. At some point, the small increase in productivity associated with the increased recovery effort may not justify the increased cost.<sup>58</sup>

#### *Cost-Sensitive Analysis*

Cost-sensitive analysis is generally less restrictive than the two previous models and may better describe the process of meeting the goals of maintaining environmental quality and protecting wildlife. It is assumed that the goals have been legislatively determined but there are some alternatives for their achievement. Also, there may be some politically motivated budget constraints that implicitly influence the choice of action. Choices frequently will be based on biological or politically determined criteria but, where alternatives are equally satisfactory in terms of these criteria, economic efficiency can play a role. Similar to cost-effective modelling, a cost-sensitive analysis may be useful in evaluating alternatives that are equally satisfactory in avoiding a jeopardy situation.

#### *Cost-Oblivious Analysis*

Finally, a cost-oblivious approach may be used to address societal issues. In this case a goal has been politically established that is so extreme that there is no room for alternative paths of action or concern about economic efficiency.<sup>59</sup> This approach is appropriate in listing decisions

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58. See J.B. Hyman and K. Weinstedt, *The Role of Biological and Economic Analysis in the Listing of Endangered Species*, 104 *RESOURCES FOR THE FUTURE* 5 (1991).

59. Whittlesey and Wanderschneider, *supra* note 55 (manuscript at 7).



under the ESA. The statute and legislative history indicate that a decision that a species is "endangered" or "threatened" should be based on biological data and should not be influenced by economic considerations. This approach is also appropriate in decisions concerning whether an action is likely to jeopardize the continued existence of a species. These are biological decisions and there is no room in the decision-making process to consider B/C or social welfare functions.

The cost-oblivious model, however, is not required for other decisions in the ESA process. In terms of ensuring the survival of a endangered or threatened species, there are usually alternatives or choices that avoid jeopardizing the species and that allow for a cost-effective or cost-sensitive approach. In terms of providing for the recovery of these species and in providing for special management measures, even greater latitude is generally available, and a cost-effective analysis appears most appropriate. In special cases, such as an application to the Endangered Species Committee, or where economic considerations are of paramount importance, a B/C analysis may be most appropriate.

#### IV SUMMARY OF ECONOMIC CONSIDERATIONS

This article outlined the situations where economic assessments play a role in the ESA process and discussed four economic evaluation techniques. Economic considerations are not relevant to the ESA listing process. Likewise, economic impacts are not considered in making jeopardy or adverse modification determinations; and, except in extraordinary circumstances, economic considerations may not be used to excuse compliance with the duty to avoid agency actions that are likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat. In the rare case where an application for an exemption is submitted to the Endangered Species Committee, economic factors are considered in determining whether to allow an action that is likely to result in jeopardy or in the destruction or adverse modification of critical habitat.

Three other ESA actions include the consideration of economic consequences. First, economic impacts must be considered in the designation of critical habitat, although the relevance and importance of economics at this stage of the ESA process may be limited. Second, the consideration of economics is important in evaluating options that are available to avoid jeopardy. Where two or more alternatives exist that would comply with the mandates of the ESA, it is appropriate to consider economics in choosing between them. Finally, economic considerations may be especially relevant and important during the later stages of the ESA process and should be considered during recovery planning process and in implementing management actions and conservation measures.

Economic considerations are not ignored by the ESA. The role of economics, while circumscribed in some instances, is an important part of evaluating projects that may affect listed species or their habitat, and is valuable in the implementation of recovery actions. If economic factors are considered, a systematic and rational approach is encouraged. Decisions should be based on a comprehensive economic analysis that is used in a consistent, rather than an ad hoc, fashion. While some feel that biological decisions should not be “contaminated” by economic considerations, a faulty economic analysis may pose an even greater threat to the integrity of the ESA.

