

EXHIBIT Q

Association of Fish and Wildlife Agencies Threatened and Endangered Species Policy Committee

Report to the Association by the Subcommittee on Endangered Species Law and Management of Species Deleteriously Affected by Climate Change

The Association of Fish and Wildlife Agencies (Association) recognized the increasing challenges being experienced by State fish and wildlife agencies in responding to climate change, particularly due to complexity, and at times, constraints resulting from implementation of the Endangered Species Act of 1973, as amended, (ESA). On March 28, 2008, the Association established a subcommittee of the Threatened and Endangered Species Policy Committee and charged it with the following working directive:

That the Association establish a subcommittee to analyze, deliberate and recommend any necessary changes to the Endangered Species law and/or implementing policy to accommodate management of species affected deleteriously by climate change.

The ESA provides for conservation of endangered and threatened species as well as the ecosystems on which those species rely. In general, the United States Department of the Interior Fish and Wildlife Service (FWS) administers the ESA for terrestrial and freshwater species, including certain marine mammals, and the National Marine Fisheries Service (NMFS), a part of the Oceanic and Atmospheric Administration and Department of Commerce, administers the ESA for marine and pelagic species. Increasingly, these agencies are being petitioned to list species under the ESA due to climate related impacts. The use of the ESA to address climate related impacts is novel and the appropriateness of existing policies, procedures and criteria for decisions is largely untested.

The challenge for resource management agencies is to manage for sustainable ecosystems in an uncertain future shaped by climate change and to anticipate changes needed in their institutional, legal, and policy frameworks in order to respond quickly enough to manage fish and wildlife resources for the “public trust.” State fish and wildlife agencies have an extensive history of fulfilling their responsibility and authority to manage fish and wildlife resources for the public trust and are well positioned to address these issues in cooperation with the federal agencies charged with habitat management and implementation of the ESA.

In fulfilling the AFWA directive, the purpose of this report is to identify the challenges and opportunities faced by resource managers in application of the Endangered Species Act (ESA) in relation to climate change and to recommend any necessary changes in laws, regulations, and policies for the benefit of the resources and public. This issue paper was developed by a subcommittee of the AFWA Threatened and Endangered Species Committee with input by other AFWA committees, Regional Associations, and members. This paper is a product of the Association of Fish and Wildlife Agencies and does not necessarily reflect the opinion of all agencies, individuals, and organizations that participated in the discussions or provided technical information for consideration of the subcommittee.

Overview – Impacts of Climate Change to Ecosystems and Species

Climate change is predicted to have significant effects on natural resources during the next 50-100 years. Depending upon location, changes may include warming temperatures, sea level rise, and extreme precipitation events or drought conditions. According to the Intergovernmental Panel on Climate Change Reports, (IPCC, 2007), climate change in northern areas is predicted to result in generally milder winters, longer and warmer growing seasons, glacial melting, increased evapotranspiration, and extreme snowfall and rain events leading to increased flooding. In southern areas, predictions include hotter and longer summers, drought conditions, and increased wildfires. Along coasts and on islands, inundation of lands is predicted to result from rising sea level. Predictions of biological effects include increases in insect and disease infestations, habitat fragmentation and loss, pollution and sedimentation, shifts in species distribution, spread of invasive species, changes in timing of natural events, and loss of those species that cannot relocate or adapt quickly enough to the changing environment. According to the IPCC report, climate change could increase the risk of extinction for approximately a quarter of the world's biodiversity. Species most likely to be negatively affected are species already at risk from other threats and species in regions experiencing the greatest amount of climate change. While some species will be negatively impacted, others will benefit from a changing climate.

Given these predicted changes, it may be impossible to retain all components of existing ecosystems and retain existing ecosystems in their present locations. However, a cooperative focus by State and federal agencies and conservation partners on maintaining healthy ecosystems will assure support for the greatest number of species. Species will react differently to ecosystem and habitat changes that result from climate change. Some will benefit and increase their range and abundance while others will be negatively affected and exhibit contracted range and reduced abundance. Rare, declining, and endangered and threatened species probably will be the first impacted due to their often limited range and low population numbers. Current conservation measures for present day, naturally occurring biodiversity will need to be both responsive and proactive to minimize potentially deleterious effects of climate change.

Conservation in the face of climate change will require cooperative efforts to establish priorities for maintaining endemic and indigenous biodiversity, as well as ecosystem function and services, under rapidly changing environmental conditions. It may not be feasible to prevent all extinctions or fully recover species such that they can ultimately be self-sustaining. Thus, pragmatic prioritization will be required for the agencies to identify those species that may become extirpated or extinct in the new conditions and those that may be able to either adapt to new conditions or may be able to redistribute as conditions change.

There is an urgent need for a more comprehensive approach to maintaining species in the face of predicted climate change. The ESA is one important component of a comprehensive approach that involves clear identification of impacts of predicted climate change and implements the actions needed to maintain species. Collaborative approaches among State and federal agencies, academic institutions, and non-government organizations (NGO) will be necessary to maximize resources available to address future common challenges. Also, broad collaboration and communication will be needed with a commitment among State and federal agencies, researchers, policy makers, planners, and natural resource managers to explore and advocate for

sound national policies and funding to address these issues at the national, regional, and state levels. Finally, key to success in addressing the challenges to maintaining species affected by climate change will be the ability for resource management agencies to communicate with stakeholders and the general public and to provide information on issues and rationale for management approaches and actions at the local, state, regional, and national level in the midst of change and uncertainty.

The role and effectiveness of ESA in dealing with climate change has and continues to be discussed and debated. For example, some interests are seeking to reduce anthropogenic increases in atmospheric greenhouse gases (GHG) as the continuing cause of climate change and are attempting to use the ESA as a means to affect change in national policy on regulation of GHG emission. These groups have filed petitions to list hundreds of species based on projected impacts of climate change, with the expectation that the regulatory authority of ESA can, and will, be used to reduce GHG emissions and slow the rate of climate change. However, as Secretary Salazar noted in his upholding of the Section 4(d) polar bear rule, the ESA is not the proper mechanism for controlling our nation's carbon emissions. Reduction of global GHG emissions requires a global response that includes energy and other domestic and international complementary mechanisms. The regulatory scope and management responsibilities of the ESA are focused on species and ecosystems in the United States. In addition, the manpower and fiscal costs to federal and State agencies responding to listing petitions for species potentially affected by climate change could divert limited resources from other ESA responsibilities, such as recovery efforts, and from the State agencies' abilities to take proactive steps to avoid deleterious effects of climate change. Current ESA regulatory resources are overburdened, and these additional petitions and associated required actions, such as those required in responding to these petitions, may exceed the capacity of agencies to effectively address endangered species issues. Diversion of these resources may reduce the benefits of the ESA for species facing threats that could otherwise be effectively ameliorated through ESA regulatory action.

In summary, this report identifies both the challenges and opportunities and limitations for application of the ESA to the issues resource managers face in dealing with the impacts of species management in the face of climate change. The following sections address the issues of how the ESA and climate change interact, identify potential mechanisms or options to decide when the ESA should be applied; describe a potential role of State Wildlife Action Plans to complement the ESA; and identify options for improvements in the ESA when dealing with climate change issues in the areas of listing actions, definition of "foreseeable future", treatment of critical habitat, and recovery standards. These sections also recommend options to address the issues, either through changes in the ESA legislation, regulations, or implementing policies. Given that climate change is increasingly being used as a basis for ESA decisions, it is imperative that the issues identified are discussed and deliberated in an urgent manner. It is also imperative that all resource management agencies, partners, and stakeholders acknowledge these issues and support any needed changes. This cooperative approach to resolving issues will help assure that both State management and federal ESA decisions are consistent and focused on providing maximum benefit for the species and ecosystems. Specifically, in the near term, we invite the Services responsible for ESA oversight to begin working through the following issues with AFWA.

Issues Identified in Implementation of the ESA and Proposed Options for Needed Changes :

ISSUE 1. How Best to manage dynamic evolving ecosystems within the context of the ESA and its implementing regulations and policies based on individual species actions.

Given the broad scope of predicted climate change impacts, a renewed emphasis on implementation of the core intent of ESA is warranted, as stated in Section 2.(b) of the Act: “Purposes. – The purposes of the Act are to provide a means whereby the **ecosystems** upon which endangered species and threatened species depend may be conserved....” Climate change is altering ecosystem processes and functions, as well as causing shifts in the geographic extent of ecosystems. As such, it may not be possible to assure the status quo of all ecosystems and their individual component species, but a focus on maintaining healthy ecosystems will assure support for the greatest number of component parts.

- Increased research and monitoring will be necessary to improve our understanding of how ecosystem-wide changes due to climate change affect biological communities, species, and populations and to mitigate those affects.
- Effective management will require actions on an ecosystem or larger scale to address these systemic changes in conditions.
- Proactive, coordinated, and broad-based efforts to undertake conservation actions, such as the establishment of corridors for movement of species to more suitable habitats, and efforts to develop and implement viable methods for movement of sessile species to new habitats, is a promising approach to meeting the purpose and goals of the ESA.

Suggested options for changes to augment or replace the current individual species approach in implementation of the ESA include:

1. **Provide the federal and state agencies the flexibility to identify and prioritize actions based on umbrella species or those species whose habitat requirements include those of many other species, e.g., at the landscape scale.** These changes would allow management actions that extend benefits to multiple species and benefit habitat for multiple species, rather than the present application of ESA in a sequential individual species approach. Conservation actions for umbrella species or habitat should assist in conserving other species without further regulatory actions. This discretionary authority could be applied through revision of recovery plans, clearer direction in federal policies, and deference to State agency actions in state management plans discussed below.
2. **Incorporate State Wildlife Action Plans or Other State Landscape Level Plans and Strategies into the ESA Listing and Recovery Process.** The conservation, restoration, management, and mitigative measures of the States and other agencies and partners developed in State Wildlife Action Plans or other landscape level plans and strategies offer an effective means to address the deleterious affects of climate change on species prior to needing ESA protections. The effectiveness of States in providing adequate

conservation through regulatory protections and/or incentive-based programs for species and their habitats can have a strong conservation benefit. For example, the use of State expertise, data, personnel, working relationships with private landowners, and jurisdiction on all lands is incorporated in State plans and strategies and has the potential to achieve greater conservation benefits faster and cheaper than duplicating or only relying on efforts and processes in the traditional ESA listing approach and recovery programs.

Allowing State fish and wildlife management agencies a collaborative and coordinated co-equal role in the regulation and implementation of the ESA would alleviate some of the impeding issues of the current law. There may be instances when regional or locally adopted plans, backed by the requirements of ESA can, with federal support, be more effective than federal regulatory actions alone over time. For example, regional or local entities might be more prone to participate and support plans that are administered by the State, and the flexibility of regional and local plans could potentially exceed the benefits of the ESA. Such a system would allow each State to make use of their local expertise that is most familiar and arguably best able to handle the local environmental conditions, public participation, and partnership of other agencies and NGOs. Allowing States to “take the lead” will allow the federal agencies to use their limited resources in areas in which there is less state participation. States may have powers outside the federal agencies’ range to adopt measures not permitted by the ESA but that would still aid the long term protection of the species. NMFS encourages comprehensive planning for programs at the State level and indicates that such programs can be one of the most efficient methods to implement effective conservation practices nationally and achieve comprehensive benefits to listed fish and their habitats. Allowing States to assume greater control of conservation would also allow the federal agencies to use their limited resources in other areas or for other species.

Suggested options to use State Wildlife Action Plans or other Landscape Level Plans and Strategies to protect and manage species affected by climate impacts, before or in lieu of listing the species and/or in recovery plans.

- 1) Investigate federal agency flexibility to use State Wildlife Action Plans and other conservation efforts before or in lieu of listing the species. This could be done through revision of the PEACE policy and the listing priority guidance. Greater use of State Wildlife Action Plans or other State management actions could be achieved by clearer direction in Service policy and by incorporating State plans into recovery plans.
- 2) States can update or amend their State Wildlife Action Plans or other landscape level plans and strategies to incorporate the monitoring and management actions for species at risk from climate change. This change in broadening the focus and use of the State Plans would require a change in implementing federal policy, and whether the Plans will be updated or amended in order to be used should remain a discretionary decision by the individual States.
- 3) Adequately fund State Wildlife Action Plans and other conservation plans and strategies that mitigate the affects of climate change on wildlife. This change would require statutory action by Congress and should be a priority at both the federal and

state level. This change could be achieved through legislation such as additional funding for State management plans and climate change legislation.

ISSUE 2. Agencies Need Additional Tools to Address Climate Change in Listing Actions:

Climate change is predicted to cause changes in many ecosystems and the habitats and species they support. Managing existing ecosystems and the species diversity they support must consider that, as ecosystems change, some species will benefit while others will be deleteriously affected. It will not be possible to retain the status quo in the face of these changes, and it may not be possible to save all species. While impacts associated with predicted climate change may take years to develop, the severity and magnitude of the predicted impacts will vary dependent on many factors. These factors include a species ability to adapt to changing habitats and situations, human efforts to slow or reverse climate change, available alternative habitat, and agencies' abilities to predict, monitor and manage for impacts on species.

Hundreds of ESA listing actions are being pursued based on predicted climate change related impacts and resultant population declines projected over 50-100 years. Given the current lack of agency resources, the ESA listing reviews need to focus on the species at most urgent risk. Such a prioritization mandate speaks directly to climate-threatened species which, perhaps with the help of ESA and other legislation, could survive the transition to stabilized habitats. ESA petitions require administrative action and use scarce agency resources that may be better spent on management, recovery, and/or more critical listing issues.

Additionally, many climate-change listing actions are based on modeling of causal chains that link climate change to possible habitat change and subsequent reduced population viability. While similar models are used in many applications and can bring insights to complex issues and possible management responses, the limitations and variability in outcomes in models based on predicted climate change are important, especially for listing actions for currently healthy populations. Also, many mitigation actions may occur over the period climate is expected to change.

Suggested options to provide additional tools to address climate change in listing actions:

1. Effort should be made to give FWS and NMFS adequate resources to meet the ESA listing review requirements.
2. Lacking adequate resources necessitates that options be explored to modify regulations and policies (and perhaps the law itself) in order to direct climate change related listing actions toward those species with the greatest degree of near term threat. A possible approach is to give priority to those species where there is an ability to effect meaningful change through management actions or regulatory actions to prevent harmful direct impacts.
3. Listing actions based on climate change impacts should only occur if there is sufficient evidence that the species is declining or a decline is imminent and prioritized where there is scientific evidence that the species can benefit from the listing action. Prioritizing

- listing actions through this approach requires, in part, a change in the listing priority guidance and may require legislative change to be fully implemented.
4. Consider whether to not list species that will be able to migrate to other suitable habitats if their existing habitat becomes unsuitable from climate change effects. Providing flexibility not to list under these circumstances requires policy clarification to address the definition of natural range and expansion into previously unoccupied but increasingly suitable areas due to climate change, and legislative change is required to fully implement.
 5. The uncertainty associated with use of model projections of impacts to species based on climate change should be clearly identified and considered as part of the listing review, but the role of those projections needs to be clarified through a change in policy. Modeling results should not be used to list species based on projected impacts from climate change without clarifying the parameters of models and the acceptable amount of risk in modeling future impacts from climate change.
 6. Provide regulatory flexibility to manage the listing process to allow triage and to select priority species to list where meaningful change through management actions or regulatory actions can prevent harmful direct impacts. Providing flexibility to prioritize listing in this manner would be facilitated by a change in the listing priority guidance and may also require changes in regulations.
 7. The ESA should not be the means to try and force environmental policy change, such as inappropriate current efforts to seek ESA regulatory control to stop greenhouse gas emissions. Clarifying the parameters of how the ESA is used to address climate change requires establishment of a new policy statement on this issue.

ISSUE 3: Improved policy is needed to define “Foreseeable Future” in listing actions:

Foreseeable future is a concept used to assess threats specific to a species and its continued viability. Existing recovery plans generally reflect the concept that long-lived species generally require a definition of foreseeable future of greater length and short-lived species of a shorter length. However, the nature of a specific threat and the anticipated time to reduce that threat so that the continued viability of the species is assured must also be considered in listing actions, as well as subsequent ESA related actions.

Instead of defining the “future” as biologically or scientifically based, Congress used “foreseeable” to define the certainty with which an agency can see or predict the future. The ordinary meaning of the phrase “foreseeable future” establishes that it should be short enough that the agency can determine the future with a relatively high degree of certainty. Thus, the foreseeable future into which the agency must assess potential threats to a species is that time period within which the agency can actually predict the future state of things with a high degree of certainty or probability. The more complex and uncertain the set of factors affecting the species, the more difficult it is to achieve clarity into the future and shorter the time period should be.

Climate change and species specific response to climate change likely will add increased uncertainty to projections of foreseeable impacts. For example, while some climate impacts can

be modeled on a continental scale, it is difficult to assess impacts of climate change at a localized level. In these cases, climate impacts should be projected to the degree to which accurate projections at the local level can be made. In addition, climate change increases the uncertainty or error associated with assessments of extinction risk within the period forecasted as foreseeable.

Suggested options for defining “foreseeable future” for listing actions:

1. Given the uncertainties associated with predicted climate change and projected impacts on the species and its habitat, a rational, consistent and science-based framework is needed for defining “acceptable” certainty and level of risk for use of climate models in relation to foreseeable future in listing decisions, including uplisting and delisting decisions. Use of climate models to assess impacts at regional or localized levels should be constrained to the bounds of certainty within the models and should not be used to project impacts beyond those that can be determined with an acceptable degree of certainty based on the best science available for determining the foreseeable future and best science available for determining acceptable level of risk. A change in implementing policy is needed that would clarify the parameters of models and establish the acceptable amount of risk in modeling future impacts from climate change.
2. The probability of extinction thresholds that define uplisting and delisting criteria should be limited to the realistic “foreseeable future;” i.e., some specified number of generations or some period for which the future can be predicted with confidence.

ISSUE 4: ESA requires designation of Critical Habitat without consideration of changing habitat due to predicted climate change or agency lack of scientific information:

The term “critical habitat” is defined by FWS as “a specific geographic area(s) that is essential for the conservation of a threatened or endangered species and that may require special management and protection “ and “it may represent any portion of the present habitat of a listed species and may include additional areas for reasonable population expansion.” The ESA requires that critical habitat be designated at the time of listing or within one year of listing, even though the physical and biological features that may be “essential” to conservation of a species or how a species may react to changing conditions may not be understood. Also, critical habitat is based on current habitat conditions that are assumed to remain static through time. Climate change may modify those habitats potentially making them unsuitable, or those actual suitable conditions may move geographically as the climate changes. Accelerated and potentially dramatic changes in habitat due to climate change may affect many species, and further complicate a lack of scientific data and compound the difficulty in making critical habitat designations.

Suggested options to assist agencies making critical habitat designations in the face of potential impacts of climate change:

1. Explore options that designation of critical habitat without the resources or ability to predict impacts on species or changing locations of suitable habitat due to climate change should be

discretionary. Changing the ESA from requiring designation of critical habitat to a discretionary action will require a legislative change. Some flexibility in designating critical habitat may also be achieved through new regulations clarifying when critical habitat designation is not prudent or not determinable.

2. Focus designation of critical habitat on areas known to be most in need of protection due to the impacts of climate change – e.g. breeding grounds or migratory routes - and where such designation can have a meaningful impact on species viability. Changing the focus and definition of critical habitat areas will require a change in the definitions for critical habitat in the law and will require congressional action.
3. Include a review of critical habitat designations during the 5-year status review process, where critical habitat may be modified according to need. The Services currently have this flexibility and implementing this would require a broadening in the 5-year status review procedures and a change in implementing policy.
4. Move critical habitat designation to the Recovery Plan process and provide flexibility to identify and map essential habitat in the recovery planning process – in lieu of the mandatory designation during the listing process. Providing the flexibility to move this to the recovery planning process will require a change in the statute.
5. Incorporate adaptive management approaches and analysis for modification of critical habitat. Clarifying the parameters to consider in making a modification in critical habitat would require a change in implementing policy.

ISSUE 5: Recovery standards are needed for delisting or uplisting in face of predicted climate change.

Once a species is listed under the ESA, standards for delisting and uplisting a species are defined as part of the development of a recovery plan. Recovery plans are documents designed to guide—they are not regulatory. The uncertainty associated with predicted climate change impacts on species will make it more difficult to develop and assess delisting and uplisting criteria, as well as population viability analyses, unless clear criteria are established in the ESA listing decision process itself.

Suggested options to establish criteria for delisting and uplisting decisions:

1. Given the uncertainties associated with climate change, uplisting and delisting criteria need to remain flexible. Clarifying the parameters to be considered in establishing uplisting and delisting criteria for recovery plans would require a change in implementing policy.
2. The probability of extinction thresholds that define uplisting and delisting criteria should be limited to the realistic “foreseeable future,” which is some specified number of generations or period for which the future impacts on species can be predicted with confidence in the face of climate change. (see Issue 3) Clarifying the parameters to consider in establishing uplisting and delisting criteria would require a change in implementing policy.

ISSUE 6: Triage and decisions to take no further conservation measures.

As climate changes, ecosystems and their supported species will change. Climate change may increase the risk of extinction for approximately a quarter of the world's biodiversity and result in a conservation crisis unparalleled in our history. Some species with specialized habitat needs, restricted range, or narrow environmental tolerance may not be able to adapt to range-wide changes in conditions and survive in current habitat locations. It is hoped that in most cases, plants and animals will be able to disperse into adjacent viable habitat on their own, or with human assistance, as viable habitat conditions and species compositions shift with changing climate. There will be species, however, for which some habitats completely disappear and where human intervention cannot prevent the change and loss of associated species. Examples include island and coastal habitats and associated plant and animals at risk from rising sea level changes, or desert streams and pools that may dry-up and the fresh water fish and invertebrates that will be lost, or alpine species that may disappear as temperatures rise and alpine habitats disappear in southern regions. Interventions for species on the brink of extinction can be successful; however, recovery of entire systems threatened by rapid climate change is a much greater challenge.

Conservation decisions will involve sometimes difficult decisions such as whether to introduce a disappearing species into a new location outside its current range (the Noah's Ark strategy). Under current regulations, non-essential experimental populations and essential experimental populations can be established outside of historic ranges, but some State Section 6 Cooperative Agreements prohibit State agencies from introducing a species outside its historic range without going through a lengthy permitting process. It might not be acceptable to establish areas to introduce disappearing species or assemblages of species to prevent their extinctions in the wild. There may be predicted affects on native species that the newly introduced species may displace or prey on. Consideration is needed as to whether agencies have or need the regulatory flexibility to establish criteria and decide that the situation is futile and cease conservation efforts (e.g., cease to spend money on affirmative recovery efforts) for a species whose habitat no longer exists.

As larger and more frequent deleterious affects occur due to climate change, it will be necessary for the federal agencies to have the regulatory flexibility to prioritize what species to act on first, and where to focus time, resources, and management actions to maximize benefits. Court decisions and ESA regulations currently do not give the agencies the flexibility to decide which listing action to pursue first or to decide if one regulatory action would fill the conservation needs of many to prevent repetitive, time and resource draining administrative processes. Likewise, court decisions under the current regulatory framework and ESA statutes may be used to require specific management actions that may not represent the best use of resources or achieve the most beneficial management results. As difficult and sometimes competing management decisions are called for, agencies need the flexibility to set priorities and make decisions based on the greatest needs of many species, sometimes to the detriment of an individual species.

Section 6c of ESA authorizes the Secretary to "cooperate to the maximum extent practicable with the States." Further, section 6(c)(1) authorizes the Secretary to enter into a "cooperative agreement with any State which establishes and maintains an adequate and active program for the conservation of endangered species and threatened species." Under their Section 6

agreements, States and their federal partners have the ability to take many recovery actions. Because some State Section 6 agreements currently prohibit State agencies from introducing a species outside its historic range without going through a lengthy permitting process, State agencies also may not have the regulatory flexibility to prioritize what species to act on first, and where to focus time, resources, and management actions to maximize benefits for the species and the ecosystems.

In a similar vein, Section 2(b) of ESA states that the “purposes of the Act are to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved . . .” Climate change altered conditions may not be possible to assure for status quo for all ecosystems and habitats. Consequently, a focus on maintaining healthy ecosystems that will assure support for the greatest number of species and habitats would serve the greatest good.

Suggested options to address species needs through Section 6 Cooperative Agreements or revised Section 7 regulations:

1. Provide increased flexibility in State Section 6 Cooperative Agreements to allow the introduction of a species into an area outside its historic range if the States believe such a move is necessary to prevent extinction. Stream-line the federal regulatory process to make designation of experimental populations more efficient and timely. Both changes would require a change in implementing policy and probably the generic experimental population regulations.
2. Provide regulatory framework that allows flexibility to triage and defines how to select priority species to set priorities for taking management actions that would benefit multiple species, even if disregarding the needs of a few. Achieving the flexibility to take management actions that improve critical needs for some species at the disadvantage of other species will depend upon the degree of impact to the disadvantaged species. Limited incidental taking, for example, can be authorized through 4(d) rules, section 10 permits, or Section 7 incidental take statements. Policy clarification on the use of these various tools in such circumstances would be helpful.
3. Provide regulatory flexibility to cease conservation efforts (e.g., cease to spend money on affirmative recovery efforts) if intervention is futile. This would not include ceasing to apply the Section 10 prohibitions (against taking, commerce, etc.), or the Section 7 consultation requirements.
4. Provide the agencies the flexibility to identify and prioritize actions based on umbrella species that would extend benefits to multiple species, and take landscape scale approaches that benefit habitat for multiple species, rather than a sequential individual species approach.

Conclusions:

The consequences of predicted climate change will result in changes in ecosystems and habitats for fish and wildlife resources, including the geographic shift of habitat conditions and movement or loss of species that occupy those habitats. Some species will increase under changing climate conditions and some will likely become extirpated or extinct. Climate change will also exacerbate other impacts to fish and wildlife resources, such as habitat fragmentation, degradation, and loss from changing land uses, pollution, and sedimentation, and the spread of

deleterious or invasive species. These impacts may push more species into the status that they need the protections of listing under the ESA.

While appropriate for the relatively stable period when Congress adopted the ESA, the law and its implementing regulations and policies can be made more effective in focusing protections and resources to minimize losses of endemic and indigenous biodiversity and maximize benefits to as large a range of species as possible in the face of predicted climate change impacts. The ESA should be implemented in such a way to readily accommodate innovation that will be developed by the State and federal agencies to respond to the changing uncertain future of species and ecosystems resulting from climate change. The ESA and other elements of the broader conservation network will need to be coordinated and integrated to facilitate greater participation at the federal, state, and local level to effectively address and manage climate change impacts.

The accelerated time period for climate changes will challenge 21st century resource agencies to anticipate and manage for systemic changes. While the ESA serves as an important foundation, the application in the face of predicted rapid climate change is inadequate in many respects for meeting this challenge. Application of the ESA should be carefully reviewed and modified, in order to contribute effectively, along with State Wildlife Action Plans or other State landscape plans, to conserving species and ecosystem functions .

The best way to preserve the nation's biodiversity in an uncertain future is to take broad landscape-scale approaches that manage and maintain healthy ecosystems as the core condition for species conservation combined with coordinated and comprehensive State and federal management approach that benefits "clusters" or "guilds" of species with remedies that protect and restore the few and benefit the many. It is paramount that all parties actively pursue new sources of funding to effectively respond to the future needs of imperiled species and identify and develop regional partnerships to address common goals and strategies to address those needs and communicate those to policy makers and the public.