Targeted Supplemental Environmental Assessement (TSEA)
for the Threatened Coral Recovery Project

The National Oceanic and Atmospheric Administration's Restoration Center (NOAA RC) proposes to provide a cooperative agreement (NOAA Award # NA09NMF4630302) to the Nature Conservancy to implement habitat restoration. Funding would be from appropriations made under the American Recovery and Reinvestment Act of 2009 (ARRA), Pub L. No. 111-5, 123 Stat. 115. Funds will be granted under the authority of the Fish and Wildlife Coordination Act (16 U.S.C. 661, as amended) and the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006.

Purpose and Need for Action

After reviewing the proposed project, NOAA Community-based Restoration Program (CRP) staff determined that the proposed action is consistent with the purpose and need previously analyzed in the February 6, 2002 Programmatic Environmental Assessment (PEA) for the Community-based Restoration Program Implementation Plan and the CRP's June 23, 2006 Supplement (SPEA). Those programmatic documents analyze the impacts to the human environment generally resulting from the award of community-based grant funds to undertake a variety of coastal and marine habitat restoration activities. As described in the PEA/SPEA, certain site-specific impacts such as impacts to federally listed species warrant additional analysis under NEPA, to assess the potential for significant impact on the human environment. Specifically the proposed action would enhance the recovery of populations of threatened acroporid coral through the maintenance and establishment of nurseries on reefs in Florida and the U.S. Virgin Islands.

This Targeted Supplemental Environmental Assessment (TSEA) tiers to and incorporates by reference the above referenced PEA and SPEA in accordance with 50 C.F.R. §1502.20 and NAO 216-6, subsection 5.09a. This TSEA level of review is conducted in accordance with the implementation procedures described in the SPEA and appropriately focuses on consideration of effects to species listed under the Endangered Species Act, 16 U.S.C. 1531 et seq. Beyond consideration of site-specific effects to the listed species, our review of the proposed action has not revealed any substantial changes in the proposed action or new potentially significant adverse effects to other elements of the human environment which would require additional review in the TSEA or supplementation of the pre-existing NEPA documents

Alternatives Considered

I. *No Action Alternative*

Under the no action alternative, the CRP would not fund the proposal to recover populations of threatened acroporid coral through the maintenance and establishment of nurseries on reefs in Florida and the U.S. Virgin Islands.

II. *Preferred Alternative*

Description of Proposed Action

The proposed action is providing funding for the ARRA project *Threatened Coral Recovery in Florida and the U.S. Virgin Islands*. The RC has entered into a Cooperative Agreement with The Nature Conservancy (TNC) and its partners (e.g., Coral Restoration Foundation, Florida Fish and Wildlife Conservation Commission, Mote marine Laboratory, Nautical Farms, Inc., Nova Southeastern University, Penn State University, University of the Virgin Islands, and University of Miami) to carry-out the proposed action.

This project is a regional effort aimed at aiding in the recovery of populations of threatened acroporid coral through the maintenance and establishment of nurseries on reefs in Florida and the U.S.V.I. Nurseries will be maintained or established within eight distinct sub-regions: (1) Broward County, Florida; (2) BNP; (3) Upper Florida Keys; (4) Middle Florida Keys; (5) Lower Florida Keys; (6) DTNP; (7) St. Thomas, USVI; and (8) St. Croix, USVI. The potentially affected acroporid species include elkhorn coral (*Acropora palmate*) and staghorn coral (*Acropora cervicornis*). All of the proposed restoration activities will operate under the appropriate permitting program for each collection and nursery site. All collections and nursery activities will be done consistent with the requirements of those permits. The duration of the project is three years from the start date.

Site Selection

Four of the eight nursery sites are already in existence and fully permitted by the NMFS and NPS; the remaining four are being identified in conjunction with NOAA's Restoration Center (RC), NMFS Protected Resources (PRD), and the local agencies. Sites will be selected based on several factors including: (1) avoiding impacts to the reef; (2) absence of acroporid predators; (3) appropriate water quality and substrate conditions; and (4) logistics.

Coral Collections

Collection of corals to serve as nursery donor stock will be necessary. To support the scientific design of the nursery program, each nursery site, whether existing or new, will require bringing approximately 200 new 3-cm staghorn fragments into nursery. In Florida, staghorn fragments will be collected from wild parent colonies. Three 10-cm or smaller staghorn fragments will be clipped from 20 isolated wild colonies (totaling 60 fragments) within each of the six project sub regions (six in Florida) and relocated to the established nursery in each sub-region. Due to local permitting requirements, the USVI sites will only utilize fragments of opportunity (loose, living coral fragments apparently, free of disease, algae, or boring sponge infestation) to populate their nurseries; however, they will ultimately create the same number of fragments in their sites to be comparable with the Florida sites. Only the nursery sites in the Upper Keys and St. Croix will have both elkhorn and staghorn corals; all other sites will have only staghorn corals

in nursery. The location of each parent colony will be recorded and reported to the central acroporid geodatabase at FWC.

To minimize the impact of the harvesting, collections will take place from October through May when water temperatures are lower, causing the least stress to the coral colonies. No movement of fragments will occur between sub-regions in order to prevent mixing of potentially different metapopulations of corals. Each parent donor will be sampled for genotypic identification. The total maximum number of fragments collected from wild colonies in all sub regions will be 60 and 360, elkhorn and staghorn, respectively.

In addition to the corals collected under the scientific design protocols described above, the nurseries will have the capability to manage additional corals within each site. These corals will not be collected from wild parent donors; rather the following hierarchical approach will be utilized : (1) Corals of opportunity - loose, living coral fragments apparently free of disease, algae, or boring sponge infestation; (2) Corals of opportunity - harvest of fragments from areas where corals are predicted to be lost due to permitted coastal construction activities; (3) Nursery corals - corals that are already in a nursery setting; and (4) Artificial substrate - corals that are attached to artificial substrates (i.e., sea walls, docks, unpermitted artificial reef sites, etc.; does not include permitted artificial reef sites). There is no established maximum number of fragments of this nature that can be collected; the only limit is appropriate space and care within the nursery. These corals will be maintained in a separate portion of the nursery apart from those being maintained as part of the scientific design and will be tracked separately.

Nursery

Once brought into nursery each of the collected corals is fragmented into multiple fragments (between 3-cm and 5-cm). Each fragment is given a unique identifier that will allow it to be tracked back to its parent colony and allow accurate genetic tracking. The fragment will then be secured to a small concrete disc, a restoration module, or a line, depending on the species and methodology being employed (see Image 1). Each coral fragment will then receive maintenance as necessary to remove algae and predators. After 6-12 months (depending on growth), each coral will be re-fragmented into multiple 3-cm to 5-cm fragments in order produce 2nd generation corals, which are clones of the parent. Each 2nd generation coral will receive a unique identifier to facilitate ongoing tracking. Maintenance activities will be ongoing for the duration of the project (i.e., fragmentation events will occur every 6-12 months for 3 years). These methods have proven to be highly successful (i.e., little to no mortality) in pilot nurseries that have been operating for several years (Herlan and Lirman 2008).

Tissue Sampling for Genotyping

The genotype of each wild parent donor will be determined during the first six months of the project and reported to FWC. A small (approximately 1 cm^2) tissue sample will be

taken from each collected fragment or parent colony for genotyping. This genetic marker is a tool that allows long-term tracking of recruitment and proliferation resulting from these nursery sites across Florida and the USVI. This information will be added into the existing library for the species to help determine the genetic relationships across Florida and Caribbean sub-regions. All genotyping will be carried out by Penn State University (Dr. Iliana Baums or her designee) using the same techniques and biomarkers that have been used on most existing studies of *Acropora* (Baums et al. 2005).

Monitoring

On a quarterly basis, trained staff and volunteers from each project location will assist with the monitoring of nursery coral colonies. Specifics on the monitoring plans and protocols will be developed in the first quarter in close consultation with NOAA RC and PRD staff. However, general nursery monitoring activities include:

- Monitor all fragments monthly for presence/absence of disease, bleaching, breakage, predation, and survivorship. Should any of these conditions arise, they will be reported immediately to RC and response will be coordinated with RC.
- Measure all fragments. Total linear growth and number of branches recorded for each coral.
- Photographs of all fragments.
- Monitor parent for survivorship and condition (presence/absence of disease, bleaching, breakage and predation). Should any of these conditions arise, they will be reported immediately to RC and response will be coordinated with RC.
- Clean all coral disks on an as needed basis.

Outplanting of Nursery-reared Corals

The ultimate goal of engaging in controlled propagation of the species within these nurseries is for enhancement of wild populations, to support recovery of the species. Previous efforts at nursery operations and outplanting have been at a pilot scale. Because the proposed action will significantly increase the number of corals available for outplanting, a comprehensive plan must be developed to identify the methods and practices necessary to conduct wild population enhancement appropriately. This strategy is expected to be a fundamental component within the recovery plan currently being developed by the NMFS Protected Resources Division in coordination with the RC and its partners, and will address NMFS' "*Policy Regarding Controlled Propagation of Species Listed Under the ESA*" (65 FR 56916).

<u>Action Area</u>

The action area is defined by regulation as "all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action" (50 CFR 402.02). The proposed action area is the Florida Reef Tract and the reefs surrounding St. Thomas and St. Croix, USVI. Individual nurseries are usually focused on small sites; four nursery sites are existing (Broward, BNP, Upper Keys, and Lower Keys) and four will be established (Middle Keys, DTNP, St. Thomas, and St. Croix) according to the site

selection criteria described above and through the local permitting process. Collections of fragments will be made from throughout the entire action area, based on availability of sources, as permitted by the National Park Service, and in accordance with the conservation recommendations of the NMFS' October 2, 2009 Biological Opinion (BiOp) (see attached).

Environmental Effects

I. No Action Alternative

Under the no action alternative, the CRP would not fund the proposal to recover populations of threatened acroporid coral through the maintenance and establishment of nurseries on reefs in Florida and the U.S. Virgin Islands. Without the funding for this proposal, the threatened acroporid coral populations in Florida and the U.S. Virgin Islands could be genetically and numerically depleted sooner if existing nurseries were not maintained or enhanced, or if new ones were not created. This would adversely affect recovery of acroporid coral populations in the action area.

II. Preferred Alternative

The collection of coral fragments constitutes take under the ESA. However, the purpose of the acroporid nurseries is to aid the recovery of the species. An ESA section 4(d) rule that prohibits most forms of take of these species provides an exception for research and enhancement activities permitted specifically by governmental research permitting programs. All activities funded by the proposed action constitute enhancement activities covered by the take exception. In addition, impacts on listed species were analyzed pursuant to section 7 of the ESA in the BiOp(which is incorporated by reference herein.)

The proposed action would fund maintenance for existing nursery sites and establish new ones for acroporid nurseries. Collection and nursery activities could include tissue sampling; fragment breakage, handling, or collection; coral branch or colony reattachment in the nursery; coral branch or colony marking; removal of predatory organisms and algae; measuring; and/or video monitoring of colonies.

The RC developed the partnership program in close coordination with local resource managers and NMFS' Office of Protected Resources staff, and use methods that have been tested and proven through previous successful pilot nursery projects. Tissue sampling typically involves the collection of polyps or small branch tips for genotyping using hand tools, such as syringes or pliers. Reattachment of branches or colonies involves the use of epoxy or cement, with mechanical devices such as cable ties being used less often. Markers on coral branches or colonies are placed adjacent to colonies or impact a small area of the coral tissue. Measuring and video monitoring of corals involves the temporary hand placement of flexible transect tapes on corals. Lastly, whenever possible collection of nursery stock will be limited to coral fragments

produced naturally via fragmentation; where wild collections occur, monitoring of parent colonies will track lesion healing and new growth over time.

The NMFS BiOp concluded that the action as proposed, is not likely to jeopardize the continued existence of elkhorn or staghorn corals. Because the proposed action does not include any prohibited incidental take, no incidental take statement was provided and no reductions in numbers, reproduction, or distribution of either threatened coral species is expected to result from the action.

III. Comparison of Alternatives

The proposed action was presented in the ARRA proposal as an alternative that could meet the purpose and need for enhancing the recovery of threatened acroporid corals in the action area. The TSEA determined the proposed action would have no negative environmental effects, and the RC did not explore further alternatives since the proposed action was likely to be successful, and was preferable compared to the no action alternative.

Cumulative Effects

Cumulative effects include the effects of future state, tribal, or local private actions that are reasonably certain to occur in the action area considered in this TSEA. Future federal actions that are unrelated to the proposed action were not considered, since no categories of effects beyond those already described above are expected in the action area. Additionally, all activities affecting acroporid corals are highly regulated federally, and would require a separate formal consultation pursuant to section 7 of the ESA.

Agencies Consulted/Permits Required

National Marine Fisheries Service, Protected Resources Division, Southeast Region (St. Petersburg, FL) - for ESA section 7 formal consultation
The National Park Service - for permit to collect corals and establish a nursery site within Biscayne National Park and Dry Tortugas National Park

Attachment - NMFS' October 2, 2009 Biological Opinion

Finding of No Significant Impact (FONSI) for the Nature Conservancy's Threatened Coral Recovery in Florida and the US Virgin Islands

NOAA's National Marine Fisheries Service (NMFS) has prepared this Targeted Supplemental Environmental Assessment (TSEA) for a restoration activity funded through and conducted under the American Recovery and Reinvestment Act of 2009 (ARRA). NOAA's proposed action is funding of the Project (NOAA Award # NA09NMF4630302) in the amount of $3,361,244. The proposed action is funding a project entitled "Threatened Coral Recovery in Florida and the US Virgin Islands." This project is a regional effort aimed at aiding in the recovery of populations of threatened acroporid coral through the maintenance and establishment of nurseries on reefs in Florida and the U.S.V.I. Nurseries will be maintained or established within eight distinct sub-regions: (1) Broward County, Florida; (2) BNP; (3) Upper Florida Keys; (4) Middle Florida Keys; (5) Lower Florida Keys; (6) DTNP; (7) St. Thomas, USVI; and (8) St. Croix, USVI. The TSEA assesses the potential environmental impacts of this project that pertain to the Endangered Species Act Section 7 formal consultation only. The additional potential impacts for this type of project are analyzed in the February 6, 2002 Programmatic Environmental Assessment (PEA) for the Community-based Restoration Program (CRP) Implementation Plan and the June 23, 2006 Supplement (SPEA). The PEA, SPEA and TSEA are incorporated in this Finding of No Significant Impact (FONSI) by reference. In addition, impacts on listed species were analyzed pursuant to section 7 of the ESA in the National Marine Fisheries Service's Biological Opinion (BiOp) dated October 2, 2009, and are incorporated herein by reference.

National Oceanic and Atmospheric Administration Administrative Order 216-6 (May 20, 1999) contains criteria for determining the significance of the impacts of a proposed action. In addition, the Council on Environmental Quality (CEQ) regulations at 40 C.F.R. §1508.27 state that the significance of an action should be analyzed both in terms of "context" and "intensity." The significance of this action is analyzed based on the NAO 216-6 criteria and CEQ's context and intensity criteria. The criteria listed below are relevant to making a Finding of No Significant Impact, and have been considered individually, as well as in combination with the others. These include:

1) Can the proposed action reasonably be expected to cause substantial damage to the ocean and coastal habitats and/or essential fish habitat as defined under the Magnuson-Stevens Act and identified in FMPs?

> Response: No. Implementation of this project, as all projects funded through the Restoration Center, is designed to enhance or restore ocean and coastal habitats, and/or fish habitats that are essential to federally managed fish as defined under the Magnuson-Stevens Act or identified in FMPs.
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> In regards to the effects of this project on species listed under the ESA (including sea turtles, smalltooth sawfish, elkhorn and staghorn corals), NMFS Protected

Resources has issued a Biological Opinion which concludes that the proposed action is not likely to adversely affect sea turtles and smalltooth sawfish. The BiOp further concludes that the project is not likely to jeopardize the continued existence of staghorn or elkhorn coral or its habitat since clipping will impact an extremely small percentage of all staghorn in the area and would also be similar to the natural fragmentation process.

2) Can the proposed action be expected to have a substantial impact on biodiversity and/or ecosystem function within the affected area (e.g., benthic productivity, predator-prey relationships, etc.)?

Response: No. As concluded by the BiOp, the proposed action will impact an extremely small percentage of the staghorn coral within each of the eight distinct sub-regions: (1) Broward County, Florida; (2) BNP; (3) Upper Florida Keys; (4) Middle Florida Keys; (5) Lower Florida Keys; (6) DTNP; (7) St. Thomas, USVI; and (8) St. Croix, USVI. Further, collection of fragments and establishment of nurseries will have no discernable impact on the ecosystem and clipping of wild colonies represents a condition similar to the natural fragmentation process. There will be no effects on biodiversity as fragments will be genotyped and maintained within the zone from which they are collected.

3) Can the proposed action reasonably be expected to adversely affect endangered or threatened species, their critical habitat, marine mammals, or other non-target species?

Response: No. NMFS Protected Resources has issued a BiOp which concludes that there are no potential routes of effects on sea turtles and smalltooth sawfish and that the proposed action is not likely to adversely affect those species. The BiOp also concluded that the project, as proposed, may adversely affect but is not likely to jeopardize the continued existence of elkhorn or staghorn corals. The BiOp further concludes that there are potential positive effects (see pp 22 of the BiOp).

4) Are the effects on the quality of the human environment likely to be highly controversial?

Response: It is not likely that the effects of this project on the quality of the human environment are likely to be highly controversial. Highly trained divers and scientists with The Nature Conservancy and their partners will be conducting the proposed work. When possible, TNC will seek to collect fragments that have naturally broken from wild coral colonies and will only remove very small clippings from wild colonies, if necessary. Reports on the project outcome will be required by the NOAA Restoration Center and shared with NMFS Protected Resources. In addition, TNC will actively educate the public on the project goals and outcomes.

5) Can the proposed action reasonably be expected to result in substantial impacts to unique areas, such as historic or cultural resources, park land, prime farmlands, wetlands, wild and scenic rivers, essential fish habitat, or ecologically critical areas?

> Response: No. While some of this work will be conducted within the boundaries of the Florida Keys National Marine Sanctuary, the Biscayne National Park, and the Dry Tortuga's National Park - all under Sanctuary/Parks issued permits, the impacts of the proposed work are limited to establishment of small sanctuaries to temporarily house coral fragments. Impacts will also include potential clipping of wild staghorn coral colonies. Both impacts will be negligible in terms of impact to the Sanctuary and Park.

6) Is the proposed action likely to establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration?

> Response: No. Implementation of this project is expected overall to have a beneficial net effect, and not adversely affect the human environment, but it would not create a precedent on future actions with significance. Consultation with NMFS Protected Resources on this project and any others that may impact species listed under the Endangered Species Act will ensure that this action and future actions continue to provide a net beneficial effect.

DETERMINATION

In view of the information presented in this document and the analysis contained in the supporting Targeted Supplemental Environmental Assessment prepared for the Threatened Coral Recovery in Florida and the US Virgin Islands, it is hereby determined that this project will not significantly impact the quality of the human environment as described above and in the TSEA, and particularly for acroporid corals, as described above and in the TSEA. In addition, all other beneficial and adverse impacts of the proposed action have been addressed in the PEA/SPEA to further support this finding of no significant impacts. Accordingly, preparation of an EIS for this action is not necessary.

Patricia Montanio Date 12/28/09

Patricia Montanio
Direction, Office of Habitat Conservation
National Marine Fisheries Service
National Oceanic and Atmospheric Administration
U.S. Department of Commerce