

**Appendix D7**

**Implement an Entanglement Reduction and Outreach Program to Protect Seabird Populations**

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### **D7.1 GOALS AND NEXUS TO INJURY**

The goal of this action is to benefit the California brown pelican and other seabirds by reducing injuries from fish hooks and entanglement in fishing line. Hooking by anglers and entanglement in fishing line are factors affecting the survival of California brown pelicans. Eggshell thinning and elevated levels of DDT have been documented in California brown pelican eggs in the Southern California Bight (SCB) (Kiff 1994, Fry 1994). Section 5.1.1 provides a detailed description of the seabird nexus to the injuries of the Montrose case.

### **D7.2 BACKGROUND**

Most avid recreational anglers have interacted with seabirds while fishing along the California coast. Seabirds may eat the same fishes being targeted by anglers or may be attracted to bait at the end of fishing lines. As a result, seabirds can accidentally be hooked or entangled. An entanglement situation is not resolved when the line breaks and the seabird flies away. Both hooks and broken lines injure and kill seabirds. Hooks that penetrate the birds' hollow bones can lead to infection, and broken lines can wrap around legs, wings, or beaks and result in death due to starvation or the inability to fly or swim.

Although seabird entanglements can occur during any type of recreational fishing activity, conflicts most often arise at piers where large numbers of bait fishes concentrate. This concentration attracts both anglers and the seabirds that primarily feed on bait fishes, such as California brown pelicans. An example of this conflict occurred in 2001 at the Santa Cruz City Pier in Northern California. Nearly 200 brown pelicans with hooks or line entanglements were rescued, and 59 of those died or had to be euthanized due to the severity of their injuries. Many other injured birds could not be rescued. Due to the severity of the problem, the City of Santa Cruz and the California Department of Fish and Game (CDFG) closed two-thirds of the city's pier to fishing for several weeks.

### **D7.3 PROJECT DESCRIPTION AND METHODS**

This action involves expanding the American Trader Trustee Council (ATTC) Seabird Entanglement Education and Outreach Program to the fishing piers and wharves in Southern California where entanglement has occurred. The goal of the program is to provide information in the form of brochures, signs, and wildlife guides that heightens public awareness about the potential hazards to the California brown pelican and other seabird species that are vulnerable to being hooked by fishing tackle or entangled by monofilament line. This action would adopt the designs and materials from the ATTC program and modify them slightly. The program would produce a minimum of ten signs that would be placed at key areas in Los Angeles and Orange Counties. The signs would educate anglers about ways to avoid hooking birds and what to do if one is hooked. The specific locations where the signs would be installed would be identified during project implementation.

In addition to educational signs, the program would produce a brochure designed to educate anglers about measures to avoid and minimize impacts to seabirds from fishing lines and human disturbance. The ATTC has produced a brochure of this type for Southern California. By using

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existing products that have been developed for Southern California, the Natural Resource Trustees for the Montrose case (Trustees) would be able to reduce the initial design costs for the signs and brochures.

## **D7.4 ENVIRONMENTAL BENEFITS AND IMPACTS**

### **D7.4.1 Biological**

#### *Benefits*

The use of signs and brochures would help promote public awareness and thus reduce bird injuries and deaths. The seabirds that would benefit from this action include California brown pelicans, cormorants, and gulls. A successful outreach program would aid in the ongoing recovery of the endangered California brown pelican by reducing a source of injury and mortality to the species.

#### *Impacts*

Because this action involves public outreach and education, the Trustees do not anticipate any impacts to biological resources. There would be no adverse effects to California brown pelicans from the action.

### **D7.4.2 Physical**

#### *Benefits*

This program would provide information on the proper disposal of fishing line. A reduction in fishing line debris would provide benefits to the marine environment.

#### *Impacts*

This action would not have negative impacts to the physical environment.

### **D7.4.3 Human Use**

#### *Benefits*

The proper handling and disposal of fishing line would result in improved health and safety because discarded hooks can injure humans as well as wildlife. Humans are also at risk of injury when attempting to disentangle a hook or line from a seabird. A reduction in seabird/angler interaction would result in improved recreation, as hooking seabirds is a frustrating and unwelcome experience for anglers. The proper disposal of fishing line would also enhance the aesthetics of the fishing structure and vicinity.

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*Impacts*

Because this action focuses on education rather than fishing restrictions, no negative impacts would occur to human use. Minor impacts could result to aesthetics depending on the design, size, and placement of signs. The design of the signs would likely be adopted from the design developed and employed by the ATTC. The signs would be placed in consultation with appropriate local authorities in such a way as to minimize any impacts to the aesthetics of the surrounding area.

**D7.5 LIKELIHOOD OF SUCCESS/FEASIBILITY**

Education and awareness programs, including display signs and brochures, nearly always attract public attention. Successful public educational programs instill knowledge and appreciation of the subject considered. Informational and warning signs to protect seabirds have a high probability of reducing detrimental human behaviors in the targeted outreach areas.

**D7.6 PERFORMANCE CRITERIA AND MONITORING**

Public feedback and reaction would be the primary means of monitoring the success of educational activities. To be effective over time, this program would require the periodic updating and replacement of outreach materials.

**D7.7 EVALUATION**

California brown pelican survival is affected by factors such as entanglement in fishing line and hooking by anglers. The Trustees have evaluated this action against all screening and evaluation criteria developed to select restoration actions and have concluded that this action is consistent with these selection factors.

**D7.8 ESTIMATED BUDGET**

Table D7-1 shows the estimated cost of implementing an entanglement reduction and outreach program.

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**Table D7-1**  
**Estimated Budget for Entanglement Reduction and  
Outreach Program**

Item	Estimated Cost
<b>Signs (10)</b>	
Design modification	\$1,400
Signs	\$3,600
Posts and brackets	\$8,000
Sign assembly	\$1,000
<i>Subtotal</i>	<i>\$14,000</i>
<b>Brochures</b>	
Design modification	\$1,500
Printing	\$4,000
Content writer/editor	\$2,500
<i>Subtotal</i>	<i>\$8,000</i>
<b>Total</b>	<b>\$22,000</b>