



**TESTING & SHARING NEW TOOLS FOR MARINE CONSERVATION:
THE LEASING AND OWNERSHIP OF KELP FORESTS AND
OTHER MARINE ECOSYSTEMS**

A PROPOSAL FOR PATAGONIA, INC.

MARCH 2006

The Nature Conservancy requests a grant of \$90,000 to help support a three-year project to identify the role of kelp forests in supporting marine biodiversity, assess the impacts of kelp harvesting on rockfish nursery habitat and other biodiversity in kelp ecosystems, use kelp leases to help develop best management practices for kelp beds, and expand the marine conservation toolbox through outreach and training workshops to coastal land trusts and marine conservation groups on marine leasing and ownership.

KELP FORESTS AND MARINE CONSERVATION

Kelp forests are among the most productive and species-rich ecosystems in the world. The giant kelp forests off the California coast are particularly rich, boasting a complex web of biodiversity and supporting many fisheries. Kelp itself is harvested by commercial mowers for use in everyday products such as Jell-O and beer.

While the importance of kelp ecosystems is recognized, there has been little study of the kelp canopy and the impact of its removal on overall biodiversity and on its role as nursery habitat for species such as rockfish. Fishing closures have been instituted to protect adult rockfish in deeper offshore waters, but there is no direct management of juveniles and their nursery habitats. We need to develop best management practices for kelp harvests that recognize the importance of avoiding harvesting at critical times for the juveniles of species such as rockfish.

To carry out this study, we are applying some of the tools used in safeguarding terrestrial habitats. It has been commonly assumed that marine conservation and management must be substantially different than in terrestrial environments, in part because it is not possible for groups to acquire interest in the publicly owned oceans. This is an unfortunate misconception. Off the California coast, up to 50 percent of the state's kelp forests are available for lease to commercial interests. In this project, we are leasing kelp forests for conservation and research.

The Nature Conservancy has been a leader in the development of lease and ownership strategies on land, and now in the seas. As marine leasing and ownership become viable tools, other groups — such as coastal land trusts, which have not so far found ways of linking their work to the sea — could become important players in marine conservation.

The Nature Conservancy and UC Santa Cruz scientists have launched a three-year research project to identify the importance of the kelp canopy for the diverse populations of fishes, invertebrates, and macroalgae in high-priority kelp ecosystems of the Central Coast of

California. Using a combination of broad-scale surveys of Central Coast kelp forests and experimental seasonal removals of the kelp canopy at key locations, we will document the biodiversity supported by kelp canopy habitats and the potential impacts of harvesting on that diversity. We will also identify the role of kelp canopies as nursery habitats for rockfishes. The research follows recommendations developed at a series of workshops hosted by the National Center for Ecological Analysis and Synthesis.¹ The leasing work follows from new nationwide applications of this novel tool.² The work will build on two decades of our work in California kelp ecosystems and their role as fish habitat.³

In 2005 we established a working relationship with the two largest kelp harvesters in the state, ISP Alginates and The Abalone Farm, on an experiment to remove kelp canopies and study the effects on marine life. We leased one kelp bed from the state and subleased another from ISP to ensure proper experimental controls and to document how this tool might be used by other groups for marine conservation and research. We established five different pairs of treatment and control sites in the two different kelp beds. On the treatment sites, the kelp canopy was removed with traditional harvesting methods, while on the control sites there was no harvesting. We conducted diver transect surveys at all the sites prior to the experiments, and then re-surveyed the effects of canopy removal at two-week intervals after the kelp harvest. There were clear declines in juvenile rockfish and other species at sites where the canopies were removed.

KELP LEASE AND RESEARCH

In the next two field seasons, we propose to examine whether the impact of kelp canopy loss can be reduced by altering the locations of the harvest at the critical times for the settlement of juvenile rockfish. We also intend to expand the use of leasing and ownership tools for the better conservation and management of marine diversity.

The requested grant would support two-year leases at two different sites (Map 1) and the science needed to inform better management practices of these critical kelp forests. The two kelps beds (California Department of Fish and Game Kelp Beds 209 and 214) stretch across more than 15 miles of coast, encompass 4 square miles of the sea and contain more than 1,700 acres of kelp forests on the Big Sur coast of Central California. In 2006 and 2007, we are requesting a lease from the state for the bed that we previously subleased from ISP Alginates (Bed 209).

TRAINING AND OUTREACH OF LEASING AND OWNERSHIP TOOLS

Marine conservation may be as much as two decades behind terrestrial conservation, and an expanded toolkit is needed for marine conservation. The leasing and ownership of submerged lands offer many exciting possibilities for better conservation and management. Submerged lands are in fact widely available for lease and ownership. It has been estimated that nearly 1/3 of the submerged lands of U.S. coastal states are privately leased or owned. Submerged lands have been bought, sold, and leased for centuries for the exclusive use, management, and harvest of

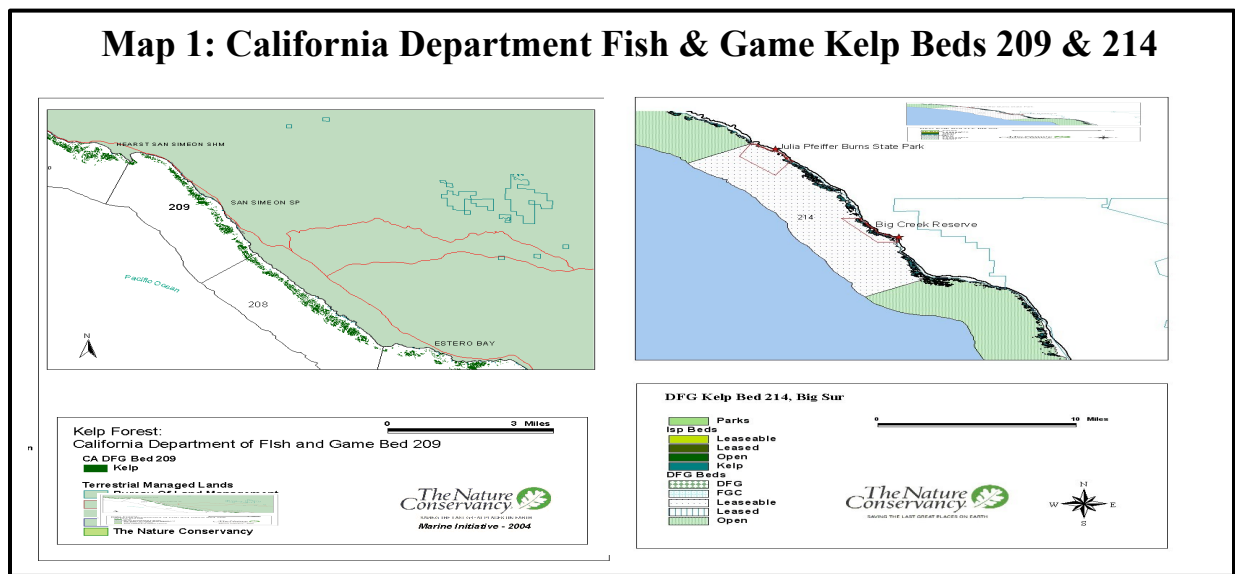
¹ Beck, M. W. , et al . 2001. The identification, conservation and management of estuarine and marine nurseries for fish and invertebrates. *Bioscience*, 51:633–641.

² Beck, M. W., T. D. Marsh, S. E. Reisewitz, M. Bortman. 2004. New tools for marine conservation: the leasing and ownership of submerged lands. *Conservation Biology* 18:1214-1223.

³ Carr, M.H. 1994. Effects of macroalgal dynamics on recruitment of a temperate reef fish. *Ecology*, 75:1320–1333.

natural resources. However, the leasing and ownership of submerged lands have been rarely used as tools for marine conservation in the United States or internationally.

The Nature Conservancy has been developing ‘in-the-water’ examples of marine leasing and ownership tools across the country. Over the next two years, we propose to hold a two-day workshop and use symposia at many other national forums⁴ to get these tools to other non-profit conservation organizations. Our core groups include marine conservation groups that have not used ownership strategies before (e.g., Baykeepers) and coastal lands trusts (almost 1,000 nationwide) that use leasing and ownership extensively, but have not applied their skills to the marine environment. Conservation organizations can use existing policy to lease and own submerged lands for the protection and restoration of ecologically functional communities. These projects can be cost-effective and offer important ecological benefits in coastal ecosystems.



PRINCIPAL STAFF

Mike Beck, Senior Scientist in The Nature Conservancy’s Global Marine Initiative, plays a key role in developing new strategies for coastal and marine conservation.

<http://www.nature.org/tncscience/scientists/misc/beck.html>.

Mark Carr, Associate Professor of Ecology and Evolutionary Biology at the University of California, Santa Cruz and the Partnership for Interdisciplinary Studies of Coastal Oceans (PISCO), has carried out 20 years of research on the population and community ecology of temperate and tropical reef fishes. <http://www.biology.ucsc.edu/people/carr/>.

Chuck Cook, Director, California Coastal and Marine Program in The Nature Conservancy’s California Chapter, is a 24 year veteran of the Conservancy. He helped launch this new marine effort in California in June 2003.

⁴ Other national forums include symposia we will hold at meetings of The Coastal Society ’06, Society for Conservation Biology ’06, Land Trust Rally ’06 & ’07, International Submerged Land Management Conference ’06 & ’07, Restore America’s Estuaries ’06, Coastal Zone Management Conference ’07.

Jay Udelhoven, Senior Policy Advisor in The Nature Conservancy's Marine Initiative, has spent 15 years developing terrestrial, wetlands, and submerged lands management and conservation strategies. He was instrumental in developing and launching the conservation leasing program in Washington State.

REQUEST TO PATAGONIA

The Nature Conservancy requests that Patagonia, Inc. consider making a grant of \$90,000 to help cover the operating expenses we will incur in carrying out these key activities:

- Conservation leases on two kelp beds representing more than 1,700 acres of kelp and 15 miles of Big Sur coastline;
- Acquiring direct knowledge of the changes in communities and key species caused by the loss of kelp canopy habitats;
- Developing best management practices by state and federal government agencies – the California Department of Fish and Game and the Monterey Bay National Marine Sanctuary – on appropriate timing and location of kelp harvests; and
- Exporting of leasing and ownership tools for protection of kelp ecosystems and other near-shore ecosystems through conservation and leasing of submerged lands.

CONCLUSION

Although kelp forests are noted for their rich biological diversity, we lack the research to understand the role of kelp canopy habitats and how loss or removal of these habitats impact rockfish populations and marine ecosystems. Through this project, the Conservancy is working to develop best management practices for kelp harvests in order to achieve long-term conservation and sustainable management of these marine resources. We intend to share our findings and strategies with like-minded organizations that also have a significant role to play in marine conservation. We invite Patagonia, Inc. to partner with us on this innovative and vital project.

PROJECT BUDGET

Expenses	Expenses Years 1-3	Use of Proposed Grant Funds
<u>I. Kelp Lease & Research</u>		
Personnel (Principal Investigators, Graduate Student, Dive and Lab Technicians)	\$ 284,285	\$ 30,000
Supplies & Transportation (Boat, Truck, Diving, Lab)	\$ 82,500	\$ 20,000
Harvesting Costs	\$ 15,000	
Leasing Costs	\$ 12,312	\$ 5,000
Subtotal	<u>\$ 394,097</u>	
<u>II. Training and Outreach</u>		
Personnel	\$ 30,985	
2-Day Training Workshop	\$ 25,000	\$ 25,000
Symposia Presentations	\$ 20,000	\$ 10,000
Subtotal	<u>\$ 75,985</u>	
Total	<u>\$ 470,082</u>	<u>\$ 90,000</u>
Income		
Grant Received from the Marisla Foundation		\$ 180,000
Grant Received from Resources Legacy Fund Foundation		\$ 180,174
Total		<u>\$ 360,174</u>