

Important Facts About California's Red Abalone Resource 1996

- **WHAT IS AN ABALONE?**

Abalone is a marine mollusk, popular as a seafood delicacy, that commands retail prices approaching \$100 per pound. Approximately 40,000 individuals participate in the recreational take of abalone. The majority of that effort is concentrated in northern California where dense populations of abalone can be legally harvested only by sport breathhold divers or waders.

- **WHAT IS THE PROBLEM WITH CALIFORNIA'S ABALONE RESOURCE?**

After decades of active abuse and neglect of the resource, abalone in the waters of central and southern California are on the verge of a total population collapse. Not long ago, abalone carpeted the bottom of near shore waters from Mexico to Oregon wherever sandy bottom gives way to the rock habitat preferred by abalone. This is somewhat still the case north of San Francisco where commercial harvesting and recreational harvesting while using SCUBA equipment have been prohibited for more than 50 years. But south of San Francisco, seemingly inexhaustible supplies of abalone have been steadily whittled away over the past 150 years until only the shallow water areas surrounding San Miguel Island and the Farallon Islands are capable of supporting commercial or recreational harvest. With all human effort now focused on those tiny areas, complete collapse of the fishery is imminent. The only question is whether it happens next year, the year after, or, as one leader in the commercial abalone industry recently insisted, not for another three to five years.

- **IS THIS A NATIONAL PROBLEM?**

Only California has significant recreational or commercial harvesting of abalone so the issues unique to that resource are not national. On the other hand, California's resource choices have not been very different from the way most state governments and the federal government manage their public trust assets. In terms of "whether" and "how" valuable resources are managed, the abalone crisis illustrates national resource issues in microcosm.

- **HOW BAD IS THIS PROBLEM?**

- *The problem is difficult to overstate.*

Central and Southern California have historically supported 5 species of abalone valued for human use. After almost 150 years of commercial harvesting and more than 50 years of recreational take on SCUBA, all of these species are in very serious trouble in the waters off central and southern California.

The White Abalone is most likely doomed to extinction already. Efforts in support of a captive breeding program, similar to those on behalf of the California Condor, have been

able to find a total of 11 individual animals¹ and only 1 of those is a female. The future existence of the species depends on those few animals.

White, Pink, Green, and Black Abalone have seen population declines dramatic enough that the California Fish and Game Commission ordered an emergency state-wide closure of those fisheries for 1996 and 1997. All human harvesting pressure is now focused on Red Abalone with no regard being given to clear warning signs of an imminent collapse of that population. Some of those warning signs include:

- ***Dramatic reductions in the quantity of abalone being landed.***

In the 1970s, commercial divers working the San Mateo County coast expected to land 10 to 15 dozen abalone per day. For the 1980s, that was reduced to 4 to 6 dozen. In the 1990s, they're down to 1 to 3 dozen².

- ***Increased efficiency with diminishing results.***

From 1951 through 1970, an average of 127 boats were involved in commercial abalone harvesting³. From 1989 through 1993, almost the same numbers of boats (119 on average⁴) were used for commercial abalone diving. In spite of the greater speed and efficiency of the new boats⁵, average annual Red Abalone landings were less than 20% of the average landings during the earlier 20 year period⁶.

- ***Smaller and smaller fishing grounds.***

With more than 80% of the California's abalone habitat, the coastal waters of central and southern California were once able to support decades of unlimited recreational and commercial harvesting from the Mexico border to San Francisco. South of San Francisco today, only San Miguel Island and the Farallon Islands support any significant human harvesting activities.

- ***Population densities too low for successful spawning.***

In 1993, the California Department of Fish and Game conducted a 3-day survey of the Fitzgerald Marine Reserve. Thirty CDFG research divers completed surveys at 26 different locations. A total of 37 (2 sport-legal, 1 commercially-legal) Red Abalone were found during searches of more than 16,250 square feet of abalone habitat⁷. For purposes of

¹ Knudson, T., Vogel, N., 1996. Pacific Blues, Sacramento Bee

² Lundy, A.L., 1997. The California Abalone Industry - A Pictorial History, Best Publishing Company, pgs. 177 & 178

³ California Department of Fish and Game, 1995. Draft Environmental Document - Pink, Green, and White Abalone Fishery Closure, Table 3-12 "Abalone landings, landed value, number of vessels and number of participants in the commercial abalone fishery, 1951 through 1993"

⁴ California Department of Fish and Game, 1995. Draft Environmental Document - Pink, Green, and White Abalone Fishery Closure, Table 3-12 "Abalone landings, landed value, number of vessels and number of participants in the commercial abalone fishery, 1951 through 1993"

⁵ Lundy, A.L., 1997. The California Abalone Industry - A Pictorial History, Best Publishing Company, pgs. 158, 159

⁶ California Department of Fish and Game, 1995. Draft Environmental Document - Pink, Green, and White Abalone Fishery Closure, Table 3-20 "Annual abalone landings (pounds, in the shell), by species, 1950 -1993"

⁷ California Department of Fish and Game, 1997. Marine Resources Division, MRD Administrative Report 97-1, Abalone Abundance Off Fitzgerald Marine Reserve, 1993, pg. 7

comparison, 300 to 650 abalone would be typical at heavily utilized areas of northern California⁸.

- **WHY ARE ABALONE POPULATIONS DECLINING?**

Far and away, the single most significant contributor to the decline of central and southern California's abalone resource has been and continues to be over-harvesting^{9 10 11 12 13}. Almost 150 years of commercial take, more than 50 years of recreational harvest, and expanding sea otter populations have combined to reduce once enormous reserves to the pitiful "resource" we see today.

- **ARE SEA OTTERS PART OF THIS ISSUE?**

Not at this point in time and not at those areas where immediate closure is desperately needed.

San Miguel Island and the Farallon Islands are the last remaining areas of significant human harvesting activity south of San Francisco. It is these areas of focused human pressure that are most in need of closure. These are also the areas that opponents most desperately need to have stay open. With only 2 resident sea otters at San Miguel and none at the Farallons, the impact of sea otters in those areas is not relevant.

That is not to say sea otters cannot become a problem. Sea otters have a voracious appetite and consume upwards of 20% of their body weight every day. A favorite food of sea otters is shellfish and it has been repeatedly shown that sea otters and human exploitable shellfish fisheries cannot coexist; when sea otters move in, human harvesters are invariably forced out. Abalone can still be found in areas heavily infested by sea otters but those abalone are too small and too hard to get to for human extraction and use.

- **WHAT OTHER FACTORS ARE INVOLVED IN THE DECLINE?**

Apart from humans and sea otters, the abalone populations have come under additional pressures that aggravate an already deteriorating situation. Especially in southern California, some of those other factors include loss of habitat, pollution, warming ocean waters, and the effects of periodic El Nino weather patterns. Also localized to southern California has been the appearance of Withering Syndrome. First noted in the Black Abalone population, this malady is marked by severe shrinkage of the living animal within its shell. Large die offs have been noted on those reefs where animals with Withering Syndrome have also been found. Scientists do not yet know the cause of this syndrome.

⁸ California Department of Fish and Game, 1997. Marine Resources Division, MRD Administrative Report 97-1, Abalone Abundance Off Fitzgerald Marine Reserve, 1993

⁹ California Department of Fish and Game, 1995. Draft Environmental Document - Pink, Green, and White Abalone Fishery Closure, pgs. 3-109 & 3-110

Lundy, A.L., 1997. The California Abalone Industry - A Pictorial History, Best Publishing Company, pgs. 206 & 207

¹⁰ California Department of Fish and Game, 1997. Marine Resources Division, MRD Administrative Report 97-1, Abalone Abundance Off Fitzgerald Marine Reserve, 1993, pg. 14

¹¹ Karpov K., Tegner M. 1992. Sea Grant Extension Publication UCSGEP-92-12, California's Living Marine Resources and Their Utilization, pgs. 35 & 36

¹² California Department of Fish and Game, 1995. Kelp Forest - Newsletter of Northern California Fish & Game's Sport Finfish and Shellfish Projects, pg. 2

¹³ Lundy, A.L., 1997. The California Abalone Industry - A Pictorial History, Best Publishing Company, pgs. 206 & 207

The combined impact of all of these factors makes it harder and harder to justify continued human harvesting of abalone from the waters of central and southern California.

- **WHAT DATA DO YOU HAVE TO BACK UP YOUR POSITION?**

The California Department of Fish and Game and the National Parks Service have been documenting the demise of California's abalone resource for decades. A small fraction of the materials containing this data is identified in the footnote references of this document.

- **WHAT EXACTLY ARE YOU HOPING TO ACCOMPLISH?**

Over the short term, we're hoping to close the Red Abalone fisheries south of San Francisco as a first step in the recovery of this resource. Over the long term, we hope that our children, their children, and their children's children can experience some small measure of the underwater heritage that was ours in the very recent past.

On the basis of the available data, the question is clearly not whether the fisheries close but when and whether it comes soon enough to be of any benefit. Right now, and for only the next few years, enough healthy populations of resident abalone exist to offer some possibility of a future recovery. Within five years or less, that possibility will disappear.

The history of California's abalone fishery provides an indisputably clear picture of where the path we're on will take us. For there to be any chance of our hopes being met, a change in paths is necessary right now.

- **WILL THE CLOSURE RESTRICT RECREATIONAL ABALONE DIVING?**

The closure will ban all abalone harvesting in California waters south of San Francisco. To the diminishing extent that recreational abalone diving has occurred in those waters in the recent past, the restriction is total. It is stark testament to the dire state of southern and central California's abalone resource when the recreational community widely supports a closure that includes the recreational fishery.

On the other hand, the fishery in waters north of San Francisco has a decades-long track record of sustainability in supporting an economically valuable sport breathhold fishery for the enjoyment of all of California's citizens. No changes in the management of that fishery are needed or desired.

- **WILL A CLOSURE PUT ANYONE OUT OF WORK?**

At last count, there were 101 commercially licensed abalone divers in California and almost all of them also have permits to harvest urchin¹⁴. Abalone is not their sole source of income and a closure will not put them out of work. However, from 1991 through 1996, legislation sponsored by commercial interests made it possible for a new diver to buy into California's abalone fishery. The very few individuals who took advantage of this program may be faced with no other source of income when the fisheries close.

¹⁴ California Department of Fish and Game, 1995. Draft Environmental Document - Pink, Green, and White Abalone Fishery Closure, pg. 3-111, section 3.6.1

- **WHY WOULD COMMERCIAL HARVESTERS ALLOW THE RESOURCE TO DISAPPEAR?**

Given easy choices, there is no doubt they would not allow the resource to disappear. Unfortunately, economic considerations make their options few and impossibly difficult.

With diminished landings comes increased value. That market fact was aggravated by 1971 legislation that reopened abalone exports from California. The value of Red Abalone landings more than doubled every six years starting in the early 1970s:¹⁵

1971:	\$ 19/dozen	Red	Abalone	in	the	shell
1983:	\$100/dozen	"	"	"	"	"
early 1993:	\$250/dozen	"	"	"	"	"
late 1993:	\$400/dozen	"	"	"	"	"
late 1995:	more than \$500/dozen	"	"	"	"	"

Compounding the financial pressures, California's management of its abalone fisheries has always been based on a "take as much as you can get as fast as you can get it" management scheme from a time when it was inconceivable to think that it could all be taken. The inconceivable has now been looming for more than two decades. Yet changes in the management of this resource continue to yield tangible effects only in maintaining short term profitability. This is not at all surprising considering that commercial interests have always played an integral role in the very process that manages the resource.

Demonstrations of the kind of guardianship commercial interests can afford to sponsor include:

- ***Maintaining commercial abalone harvesting as a no-limits fishery.***

No limits on landings of Red, Pink, or Green abalone were set until 1990. When daily limits were finally imposed, the recommendations of CDFG biologists were more than doubled during the legislative process. The result is, effectively, no limit at all. There's a 15 dozen daily limit at San Miguel where landings average 1 to 2 dozen per day Lundy, A.L., 1997. The California Abalone Industry - A Pictorial History, Best Publishing Company, pgs. 174¹⁶. For central California, the limit is 7 dozen per day and landings average 1 to 5 dozen per day¹⁷.

- ***Generating increased demand.***

In 1971, legislation reopened a fresh abalone export market that had been closed since 1913. This came just a few years after commercial landings began spectacular declines in the late 1960s. The effect has been more than a 2500% rise in value (\$19/dozen for Red Abalone in 1971 versus more than \$500/dozen in 1995¹⁸). This economic benefit went to commercial interests at the long-term expense of the resource.

- ***Reopening areas long closed to commercial harvesting.***

¹⁵ Lundy, A.L., 1997. The California Abalone Industry - A Pictorial History, Best Publishing Company, pgs. 173 to 175

¹⁶ Lundy, A.L., 1997. The California Abalone Industry - A Pictorial History, Best Publishing Company, pgs. 174

¹⁷ Lundy, A.L., 1997. The California Abalone Industry - A Pictorial History, Best Publishing Company, pgs. 178

¹⁸ Lundy, A.L., 1997. The California Abalone Industry - A Pictorial History, Best Publishing Company, pgs. 173 & 175

Legislation sponsored by commercial interests in 1991 (AB3705) successfully reopened commercial harvest in waters shallower than 20' along the San Mateo coast. The benefit of this change was greater harvest areas for commercial divers at the expense of the long-term viability of the resource and substantial ill will with the sport diving community.

- o *Maintaining low fees and special privilege taxes.*

The 1991 legislation increased the annual permit fee for California's commercial abalone diver from \$250 to \$330. Australian commercial divers pay more than 100 times that amount each year for their permits.

The same legislation levied a privilege tax of \$0.195 per pound of landings. Using 45 pounds as the weight of a dozen Red Abalone¹⁹, that amounts to less than \$9 in landing fees for more than \$500 worth of abalone.

- o *Shooting the last buffalo.*

Two decades ago, commercial landings of White Abalone were recorded in tons per year. Before the long overdue closure of that fishery in 1996, the TOTAL ANNUAL commercial landings in POUNDS were:

WHITE ABALONE COMMERCIAL LANDINGS		1987 through 1994	
1987	2 pounds	1992	0 pounds
1988	2 "	1993	0 "
1989	22 "	1994	33 "
1990	17 "	1995	? ? ? ? ? ? ?
²⁰ 1991	4 "		

- **CAN'T WILD POPULATIONS BE RESTORED FROM HATCHERY PROGRAMS?**

Technology currently exists to spawn abalone in captivity and, in the process, create millions and millions of larva each time. The sheer numbers involved naturally leads to the idea that there may be enough to use for reseeded projects. Unfortunately, it is not that simple.

The reason it is so easy to create such large numbers is because it is nature's compensation for the extremely low survival rate of abalone larva. Under the controlled conditions of a mariculture facility, larval survival rates during the first few days are a few percent. In the wild, survival rates are naturally much lower. Research on abalone out planting under conditions similar to California's coastal areas has so far demonstrated abalone out planting to be economically impractical.

- **SHOULD NORTHERN CALIFORNIA BE OPENED TO COMMERCIAL HARVESTING?**

¹⁹ California Department of Fish and Game, 1995. Draft Environmental Document - Pink, Green, and White Abalone Fishery Closure, Table 3-19 "Conversion factors used to transform number of abalone landed to round weights, in pounds per dozen"

²⁰ California Department of Fish and Game, 1995. Draft Environmental Document - Pink, Green, and White Abalone Fishery Closure, Table 3-20 "Annual abalone landings (pounds, in the shell), by species, 1950 to 1993"

No.

Prohibitions in northern California on commercial harvesting (1945) and the use of SCUBA for recreational harvesting (1953) have resulted in a de facto preserve in waters too deep or too remote for most recreational divers. This preserve has proven quite capable of replenishing abalone stocks removed from shallower areas. An estimated 40,000 sport divers spend upwards of \$10,000,000 each year²¹ in their quest for northern California's Red Abalone. Resource experts predict that current levels of recreational take can continue indefinitely barring any major environmental changes.

Northern California's abalone has a decades-long track record of being successfully managed for sustainable yield while simultaneously providing substantial economic and recreational benefits to a large segment of California's citizens. Opening the North Coast to commercial diving would require that this unique example of successful resource management be completely overhauled.

- **WHO SUPPORTS THE COMMERCIAL ABALONE TRADE IN THIS MATTER?**

The [California Abalone Association](#) is the representative organization for the commercial abalone divers.

The California Seafood Council, administered by the California Department of Food and Agriculture, also commonly advocates for the commercial interests.

- **WHAT CAN WE DO?**

Interested individuals can let their views be known to those in a position to effect some changes. They would include:

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²¹ California Department of Fish and Game, 1995. Kelp Forest - Newsletter of Northern California Fish & Game's Sport Finfish and Shellfish Projects, pg. 3

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