



Marine Protected Areas and Fisheries Integration



California's Abalones

April 29-30, 2011, San Diego, CA

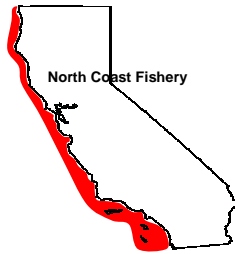
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Marine Region

California Department of Fish and Game



California's Seven Species of Abalone



North Coast Fishery

Endangered Species Under Federal ESA

White Abalone (*H. sorenseni*)

Black Abalone (*H. cracherodii*)

Red Abalone (*H. rufescens*)
Intertidal to ~100 ft. (30.5 m)

Federal List for Species of Concern

Pink Abalone (*H. corrugata*)

Green Abalone (*H. fulgens*)

Pinto Abalone (*H. kamtschatkana*)

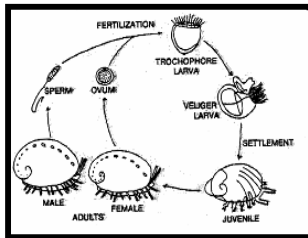
Status Unknown

Flat Abalone (*H. walallensis*)



General Life History

- Broadcast breeders
- Increased spawning success in close groups (~4.9 ft. (1.5 m) apart)
- Can reproduce yearly in favorable conditions
- Planktonic larvae settle in 4-15 days
- Juveniles cryptic
- Adults emerge at 3-4 in. (76-102 mm) when sexually mature, age 3-5 years
- Slow growth, 7 in. (178 mm) red is 6-12 years in south & 9-13 years in north



Abalone Recovery and Management Plan (ARMP)

ARMP adopted by Fish and Game Commission in '05

Goals for recovery

Goals for management

- Institute an interim management plan - done
 - * Minimum Viable Population (MVP) = 2,000 abalone/ha
 - * Sustainable Fishery Level = 6,600 abalone/ha (hectare = 2.5 acres)
- Implement a long term management plan – not yet done

Option was included in the ARMP that allows the Commission to consider a fishery in southern California



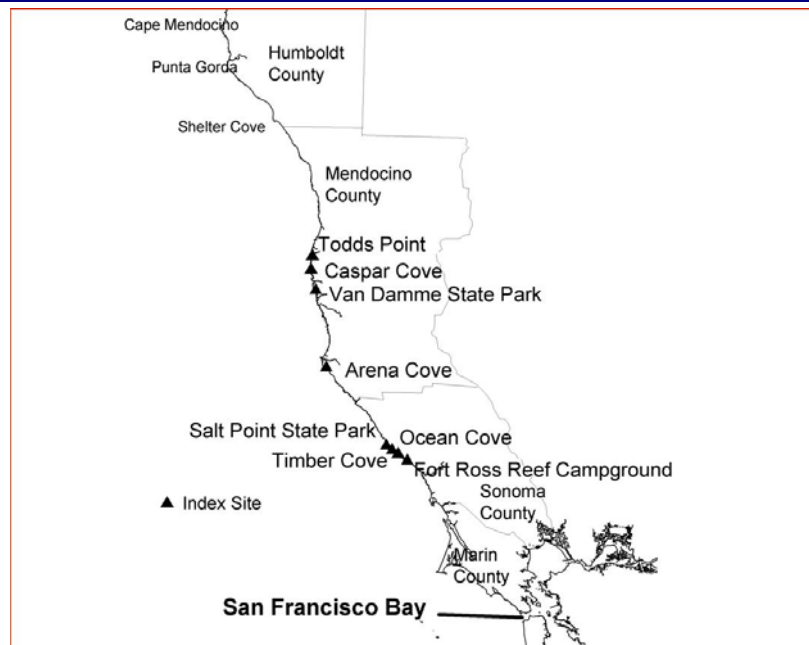
Regulations for Recreational Fishery

North of San Francisco Bay

- Free diving or shore picking only
- 7-month season
- Minimum size limit of 7 in. (178 mm)
- Daily bag limit of 3 abalone
- Annual limit of 24 abalone
- Abalone report card, each animal tagged



ARMP Index Site Survey Locations





ARMP TAC Adjustment Table

CRITERIA					ACTION
Recruitment		Density (ab/ha) - emergent surveys -			
		Deep (refuge)	AND	All Depths	
N/A		3300/ha	AND	6600/ha	2) Maintain TAC (280,000 ab/yr or revised TAC)
No	AND	< 2500/ha	OR	< 5000/ha	3) Reduce TAC by 25% increments
N/A		N/A		< 3000/ha	4) Close Fishery

Densities (2008-10): Deep = 2800/ha; All Depths = 5400/ha
 Good recruitment > 4500/ha



Abalone Resources and MPAs

- ARMP identifies MPAs as a potential abalone fishery management tool
- MPAs useful for abalone management in north and recovery in south
 - * South California: 22 out of 50 MPAs
 - * North Central: 8 out of 30 MPAs
 - * Northern California: 3 out of 22 MPAs proposed

