

Appendix II: Species Likely to Benefit from MPAs and Special Status Species in the North Central Coast

List of Fishes Likely to Benefit from the Establishment of Marine Protected Areas

List of Invertebrates and Plants Likely to Benefit from Establishment of Marine Protected Areas

Special Status Species Likely to Occur in North Central California.

Appendix II: Table (a). List of Fishes Likely to Benefit from the Establishment of Marine Protected Areas (developed for Central Coast Study Region)

Species	Primary depth range in feet (x 0.305= meters)	Primary geographic range within state using four regions	Habitat preference juveniles	Habitat preference adults	Unique or significant life-history characteristics	Larval type	Larval duration [potential larval dispersal]	Potential for adult dispersal
Butterfish (Pacific)	30-300	All	coastal pelagic	coastal pelagic	a schooling species	planktonic	unknown	moderate
Cabazon	0-250	All regions, including islands	rocky reefs, breakwaters, kelp beds, tide pools, open ocean	rocky reefs, kelp beds	eggs adhesive, attach to substrate, often macroalgae	planktonic	3-4 months	low
Croaker, white	0-420	All; most common Point Reyes to Mexico border	near bottom in shallow soft habitat	soft bottom, primarily nearshore and estuaries	schooling; multiple spawning each year; adults in deeper water than juveniles	planktonic larvae become epibenthic	short	low
Eel, wolf-	Intertidal to 600	N, NC, SC	pelagic	rocky reefs, kelp beds	not a true eel; spawn Oct.-February	planktonic?	1-2 months	moderate
Flounder, starry	Shallow -900	N,NC,SC	estuaries and bays, nearshore soft bottom	soft bottom; estuaries and bays to upper slope	spawn near river mouths and estuaries and bay	planktonic	25-75 days	moderate
Greenling, kelp	0-150	N,NC,SC	rocky reefs, kelp beds	rocky reefs, kelp beds	eggs adhere to rocky substrate	planktonic	unknown	moderate
Greenling, rock	shallow	N,NC	rocky reefs, kelp beds	rocky reefs, kelp beds	eggs adhere to rocky substrate	planktonic	unknown	moderate
Grunion, California	0-60	SC,S	sandy nearshore areas	sandy nearshore areas	eggs deposited on sandy beaches; lack filaments	planktonic	low to moderate	moderate
Guitarfish, shovelnose	0-50	SC,S	as adults	shallow sand, mud, open coast, bays, and estuaries	live-bearing	benthic	none	moderate
Hagfish, Pacific	30-3096	All	?	soft bottom	deposit egg cases	?	unknown	moderate
Halibut, California	0-300	All	estuaries, shallow open coast soft bottom	estuaries and soft bottom open coast	distribution influenced by El Niño events	planktonic	< 30 days	moderate

Species	Primary depth range in feet (x 0.305= meters)	Primary geographic range within state using four regions	Habitat preference juveniles	Habitat preference adults	Unique or significant life-history characteristics	Larval type	Larval duration [potential larval dispersal]	Potential for adult dispersal
Jacksmelt	shallow	All	kelp and eel grass beds; sandy beaches; harbors	kelp and eel grass beds; sandy beaches; harbors	eggs with filaments for attachment to eel grass and shallow algal beds	planktonic	low	moderate
Lingcod	0-1400	All	rocky reefs, kelp beds, hard bottom, soft bottom	rocky reefs, kelp beds, hard bottom, soft bottom	Spawns nearshore on rocky reefs; males guard eggs	planktonic	3 months	high
Lizardfish, California	5-750	SC,S	primarily soft bottom	primarily soft bottom	rest on bottom using pelvic fins	planktonic	unknown	moderate
Midshipman, plainfin	0-1000	All	soft bottom	soft bottom; spawn on hard substrate	Eggs deposited on rocks and hard substrate	planktonic	unknown	moderate
Opaleye	0-95	SC,S	rocky intertidal	rocky reefs, kelp beds	regulates kelp growth by grazing	planktonic	unknown	moderate
Prickleback, monkeyface	0-80	N,NC,SC	rocky intertidal	rocky reefs, kelp beds	deposit eggs on rocky substrate	planktonic	low	low
Prickleback, rock	0-60	N,NC,SC	rocky intertidal	rocky reefs, shallow	deposit eggs on rocky substrate	planktonic	low	low
Queenfish	0-180	SC,S	soft bottom	shallow water and sandy bottom; in bays and sloughs	spawn at night from March to September	planktonic	short	moderate
Ray, bat	0-150	All	shallow soft bottom; bays and estuaries	shallow sandy and rocky areas, including bays and estuaries; kelp beds	live-bearing	miniature adults	none	moderate
Rockfish, aurora	600-1800	All	soft bottom	hard and soft bottom	live-bearing	planktonic	moderate	moderate
Rockfish, bank	102-810	All	midwater	midwater over hard bottom, drop offs	live-bearing	planktonic	moderate	moderate
Rockfish, black	0-1200	N,NC,SC	soft bottom	rocky reefs, kelp forests	live-bearing	planktonic	moderate	moderate
Rockfish, black-and-yellow	0-120	NC,SC,S	shallow rocky reefs	shallow rocky reefs, kelp forests	live-bearing	planktonic	Low to moderate	low

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Rockfish, blackgill	720-1800 (juv. <660)	All	soft bottom	hard bottom, soft bottom, canyons, steep drop offs	live-bearing	planktonic	moderate	moderate
Rockfish, blue	0-300	All	rocky reefs, kelp forests, soft bottom	rocky reefs, kelp forests	live-bearing	planktonic	moderate	moderate
Bocaccio	0-1050	All	over hard and soft bottom	midwater over hard bottom	live-bearing	planktonic	moderate	moderate
Rockfish, brown	0-420	All	low-relief hard and soft bottom	low-relief hard and soft bottom	live-bearing	planktonic	low to moderate	low
Rockfish, calico	60-840	SC,S	soft bottom	hard bottom, sand-rock and mud-rock interface	live-bearing	planktonic	moderate	low
Rockfish, canary	0-900	N,NC,SC	soft bottom; sand-rock interface	midwater and near bottom over hard bottom	live-bearing	planktonic	moderate	moderate to high
Chilipepper	0-1080	All	soft bottom	midwater over hard bottom	live-bearing	planktonic	moderate	moderate
Rockfish, China	36-420	N,NC,SC	rocky reefs	rocky reefs, kelp forests	live-bearing	planktonic	low to moderate	low
Rockfish, copper	0-600	All	rocky reefs and soft bottom	rocky reefs, kelp forests	live-bearing	planktonic	moderate	low
Cowcod	68-1200	All	soft and hard bottom	hard bottom, canyons	live-bearing	planktonic	moderate	low
Rockfish, darkblotched	240-1800	All	soft bottom	soft and hard bottom	live-bearing	planktonic	moderate	moderate
Rockfish, flag	100-600	SC,S	rocky reefs	rocky reefs, canyons	live-bearing	planktonic	Moderate	low
Rockfish, gopher	0-180	NC,SC,S	rocky reefs	rocky reefs, kelp forests	live-bearing	planktonic	low to moderate	low
Rockfish, grass	0-150	All	shallow rocky reefs	shallow rocky reefs, kelp forests	live-bearing	planktonic	moderate	low
Rockfish, greenblotched	200-1300	SC,S	soft bottom	hard and soft bottom, canyons	live-bearing	planktonic	moderate	low
Rockfish, greenstriped	200-1320	All	soft bottom	low relief hard bottom, soft bottom	live-bearing	planktonic	moderate	moderate
Rockfish, greenspotted	160-660	NC,SC,S	soft bottom	hard bottom, canyons	live-bearing	planktonic	moderate	low
Rockfish, halfbanded	192-1320	SC,S	soft bottom	low relief hard and soft bottom, cobble	live-bearing	planktonic	moderate	moderate

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Rockfish, kelp	0-150	NC,SC,S	kelp forests and rocky reefs	kelp forests	live-bearing	planktonic	moderate	low
Rockfish, Olive	0-480	NC,SC,S	kelp forests, soft bottom	rocky reefs, kelp forests	live-bearing	planktonic	moderate	low
Pacific ocean perch	180-2100	All	midwater over hard bottom	midwater over hard bottom	live-bearing	planktonic	moderate	moderate
Rockfish, pink	250-1200	NC,SC,S	soft bottom	hard bottom, canyons	live-bearing	planktonic	moderate	low
Rockfish, pinkrose	325-960	SC,S	soft bottom	hard bottom, canyons	live-bearing	planktonic	moderate	low
Rockfish,	75-900	N,NC	rocky reefs	rocky reefs	live-bearing	planktonic	moderate	low
Rockfish, redbanded	300-1560	All	soft bottom	soft and hard bottom	live-bearing	planktonic	moderate	low
Rockfish,	300-1200	N,NC	hard bottom	hard bottom	live-bearing	planktonic	moderate	moderate
Rockfish, rosethorn	390-1800	N,NC,SC	soft and hard bottom	hard bottom, canyons	live-bearing	planktonic	moderate	low
Rockfish, rosy	50-420	All	soft and hard bottom	hard bottom	live-bearing	planktonic	moderate	low
Rockfish,	300-1050	All	hard bottom	hard bottom	live-bearing	planktonic	moderate	moderate
Rockfish, shortbelly	0-930	All	midwater over hard bottom	midwater over hard bottom	live-bearing	planktonic	moderate	moderate
Rockfish,	100-1200	All	hard bottom	hard bottom	live-bearing	planktonic	moderate	moderate
Rockfish, splitnose	700-1560	All	soft bottom	hard bottom, canyons	live-bearing	planktonic	moderate	moderate
Rockfish,	60-600	All	hard bottom	hard bottom	live-bearing	planktonic	moderate	moderate
Rockfish, starry	80-900	NC,SC,S	hard bottom	hard bottom	live-bearing	planktonic	moderate	low
Rockfish, stripetail	192-1320	All	soft bottom	soft and hard bottom	live-bearing	planktonic	moderate	moderate
Rockfish, swordspine	250-1420	NC,SC,S	soft bottom	hard bottom, canyons	live-bearing	planktonic	moderate	low
Rockfish, tiger	200-900	N,NC	hard bottom	hard bottom	live-bearing	planktonic	moderate	low
Rockfish, treefish	0-150	SC,S	rocky reefs	rocky reefs, kelp forests	live-bearing	planktonic	moderate	low
Rockfish, vermilion	0-900	All	soft and hard bottom	wide depth range, rocky reefs, kelp forests, canyons	live-bearing	planktonic	moderate	low
Rockfish, widow	0-1200	All	midwater over hard bottom	midwater over hard bottom	live-bearing	planktonic	moderate	moderate
Rockfish, yelloweye	150-1200	N,NC,SC	rocky reefs	hard bottom, canyons	live-bearing	planktonic	moderate	low

Species	Primary depth range in feet (x 0.305= meters)	Primary geographic range within state using four regions	Habitat preference juveniles	Habitat preference adults	Unique or significant life-history characteristics	Larval type	Larval duration [potential larval dispersal]	Potential for adult dispersal
Rockfish, yellowtail	0-1800	All	midwater	midwater over hard bottom	live-bearing	planktonic	moderate	moderate
Sanddab, Pacific	30-1800	All	soft bottom	soft bottom	may spawn twice a year	planktonic	unknown	moderate
Seabass, white	0-400	NC,SC,S occurs farther north during El Niño events	sandy area, estuaries, piers, jetties, kelp beds	kelp beds. Rocky reefs, offshore banks, open ocean	adults aggregate in spring-summer during spawning	planktonic		high
Shark, brown smoothhound	0-360	All	bays and estuaries	soft bottom, bays and estuaries, nearshore	live-bearing	miniature adults	zero	moderate
Shark, gray smoothhound	0-150	All	bays and estuaries	soft bottom, bays and estuaries, nearshore	live-bearing	miniature adults	zero	moderate
Shark, horn	0-492	S	rocky reefs, kelp beds	rocky reefs, kelp beds	lay egg cases	miniature adults	zero	moderate
Shark, Pacific angel	3-600	SC,S	flat, sandy bottoms;	flat, sandy bottoms; sand channels between reefs	live-bearing	miniature adults	zero	moderate
Shark, leopard	0-300	All	enclosed bays and sloughs; kelp beds; shallow sandy areas	enclosed bays and sloughs; kelp beds; shallow sandy areas near reefs	aggregate in very shallow water to release young; live-bearing	miniature adults	zero	moderate
Sheephead, California	0-180	SC,S	rocky reefs, kelp beds	rocky reefs, kelp beds	changes sex from female to male with size	planktonic	unknown	moderate
Skate, big	10-360	N,NC,SC	soft bottom	soft bottom, occasionally rocky reefs	young hatch from eggs in cases	miniature adults	zero	moderate
Skate, California	60-2200	All	soft bottom	soft bottom	young hatch from eggs in cases	miniature adults	zero	moderate
Skate, longnose	180-2040	All	soft bottom	soft bottom	young hatch from eggs in cases	miniature adults	zero	moderate
Smelt, night	0-420	N,NC,SC	soft bottom	shallow sandy coastal areas	spawn in surf zone at night	planktonic	low to moderate	moderate
Smelt, surf	shallow	N,NC,SC	soft bottom	shallow sandy coastal areas	spawn in surf zone in daytime	planktonic	low to moderate	moderate

Species	Primary depth range in feet (x 0.305= meters)	Primary geographic range within state using four regions	Habitat preference juveniles	Habitat preference adults	Unique or significant life-history characteristics	Larval type	Larval duration [potential larval dispersal]	Potential for adult dispersal
Smelt, whitebait	0-180	N,NC,SC	soft bottom	shallow sandy coastal areas, bays, and estuaries	spawn in sandy subtidal areas	planktonic	low to moderate	moderate
Sole, Dover	60-3000	All	soft bottom, deep water	soft bottom, deep water	a portion of the stock migrates	planktonic	at least 1 year	moderate
Sole, English	60-1000	All	soft bottom, shelf	soft bottom	migrates, spawns at 200-360 ft	planktonic	6-10 weeks	moderate
Sole, petrale	60-1500	All	soft and hard bottom, shelf	soft and hard bottom, shelf	migrates, spawns at 900-1200 ft	planktonic	unknown	moderate
Sole, rex	60-2100	All	Soft bottom, shelf and slope	soft bottom, shelf and slope	spawns at 300-900 ft	planktonic	at least 1 year	moderate
Sole, rock	50-1200	N,NC,SC	soft and hard bottom, shelf	soft and hard bottom, shelf	one of few flatfishes found on rocky bottom	planktonic	unknown	moderate
Sole, sand	5-312	N,NC,SC	Soft bottom, nearshore, estuaries	soft bottom, nearshore	one of few medium-large flatfish found inshore	planktonic	unknown	moderate
Sole, slender	250-1700	All	soft bottom, shelf and slope	soft bottom, shelf and slope	relatively abundant offshore species	planktonic	moderate	moderate
Surfperch, barred	0-240	NC,SC,S	beaches	beaches	bear live, free-swimming young	not applicable	not applic-able	moderate
Surfperch, black	0-130	All	rocky reef, kelp beds	rocky reef, kelp beds	bear live, free-swimming young	not applicable	not applic-able	moderate
Surfperch, calico	0-30	All	beaches	beaches	bear live, free-swimming young	not applicable	not applic-able	moderate
Surfperch, pile	0-240	All	rocky reefs, kelp beds, soft bottom	rocky reefs, kelp beds, soft bottom	bear live, free-swimming young	not applicable	not applic-able	moderate
Surfperch, rainbow	0-130	All	rocky reef, kelp beds	rocky reef, kelp beds	bear live, free-swimming young	not applicable	not applic-able	moderate
Surfperch, redbtail	0-60	N,NC	beaches	beaches	bear live, free-swimming young	not applicable	not applic-able	moderate
Surfperch, rubberlip	0-150	All	rocky reefs, kelp beds, soft bottom	rocky reefs, kelp beds, soft bottom	bear live, free-swimming young	not applicable	not applic-able	moderate
Surfperch, shiner	0-480	All	estuaries, soft bottom, kelp beds, rocky reef	estuaries, soft bottom, kelp beds, rocky reef	bear live, free-swimming young	not applicable	not applic-able	moderate to high(?)
Surfperch, striped	0-55	All	rocky reef, kelp beds	rocky reef, kelp beds	bear live, free-swimming young	not applicable	not applic-able	moderate

Species	Primary depth range in feet (x 0.305= meters)	Primary geographic range within state using four regions	Habitat preference juveniles	Habitat preference adults	Unique or significant life-history characteristics	Larval type	Larval duration [potential larval dispersal]	Potential for adult dispersal
Surfperch, walleye	0-60	All	beaches	beaches	bear live, free-swimming young	not applicable	not applic-able	moderate
Surfperch, white	0-140	All	rocky reefs, kelp beds, soft bottom	rocky reefs, kelp beds, soft bottom	bear live, free-swimming young	not applicable	not applic-able	moderate
Thornyhead, longspine	1090-5000	All	deep hard and soft bottom	deep hard and soft bottom; slope	lack swim bladder; may survive after being brought to surface and released; spawn gelatinous floating egg masses	planktonic	unknown	moderate to high
Thornyhead, shortspine	84-5000+	All	deep hard and soft bottom	deep hard and soft bottom; slope	lack swim bladder; may survive after being brought to surface and released; spawn gelatinous floating egg masses	planktonic	unknown	moderate to high
Tomcod, Pacific	0-720	N,NC,SC	unknown	soft bottom	broadcast spawners; high fecundity	planktonic	unknown	moderate
Topsmelt	shallow	All	kelp and eel grass beds; sandy beaches, harbors	kelp and eel grass beds; sandy beaches, harbors	spawns in eel grass and algal beds, possibly kelp beds; eggs attach to spawning substrate by adhesive filaments	planktonic	low	moderate
Turbot, C-O	shallow-966	All	rocky reef, sand; shelf	rocky reef, sand; shelf	one of few flatfishes to occur in kelp beds	planktonic	unknown	moderate
Turbot, curlfin	25-1146	All	soft bottom	soft bottom; shelf	small mouth; difficult to catch with hook-and-line	planktonic	unknown	moderate
Whitefish, ocean	0-300	SC,S	unknown	midwater over hard and soft bottom	responds favorably to El Niño conditions	planktonic	unknown	moderate

Note: N= North Coast; NC= North-Central Coast; SC= South Central Coast; S= South Coast

Appendix II: Table (b). List of Invertebrates and Plants Likely to Benefit from Establishment of Marine Protected Areas (developed for Central Coast Study Region)

Species	Primary depth range (feet) (x 0.305 = meters)	Primary Geographic range within state using four regions	Habitat preference juveniles	Habitat preference adults	Unique or significant life history characteristics	Larval type	Larval duration [potential larval dispersal]	Potential for adult dispersal (vagility)
Crab, box	0-1800	All regions, including islands	rocky reef, submarine canyons	rocky reef, submarine canyons	unknown	planktonic	unknown	unknown
Crab, brown rock	0-300	All regions, including islands	rocky reefs, kelp beds,	rocky reefs, kelp beds,	rock crabs may live 5-6 years	planktonic	3-4 months	moderate
Crab, Dungeness	0-750	N,NC,SC	sand, sand-mud, estuaries	sand, sand-mud	larvae may be trans- ported more than 50 miles offshore	planktonic	105-125 days	moderate
Crab, red rock	0-750	All regions, including islands	rocky reefs, submarine canyons	rocky reefs, submarine canyons	may co-occur with spot prawns	planktonic	3-4 months	moderate
Crab, sand	Intertidal	All regions, including islands	intertidal, shallow subtidal sand	intertidal, shallow subtidal sand	larvae often co-occur with Dungeness crab larvae	planktonic	unknown	low
Prawn, spot	150-1,600	All regions, including islands	shallower mud, mud-sand, sand/rock. rocky reef, submarine canyons	mud, mud-sand, sand/rock. rocky reef, submarine canyons	change sex from male to female during year 4	planktonic	unknown	moderate
Shrimp, ghost and mud shrimp (several species)	Intertidal	All regions	sand, sand/mud, sand/gravel	sand, sand/mud, sand/gravel	form permanent burrows or imperma- nent tunnels	planktonic	unknown	low
Shrimp, ocean	150-1200	N,NC,SC: Oregon border to Pt. Arguello	green mud, mud-sand	green mud, mud-sand	change sex from male to female during year 2	planktonic	2.5 to 3 months	moderate
Urchin, purple	0-300	All regions, including islands	rocky reefs, kelp beds, under canopy of adults	rocky reefs, kelp beds	require high densities for successful spawning	planktonic	6-8 weeks	low
Urchin, red	Intertidal to 500	All regions, including islands	rocky reefs, kelp beds, under canopy of adults	rocky reefs, kelp beds	require high densities for successful spawning	planktonic	6-8 weeks	low
Abalone, black	Intertidal, 0-20	NC,SC,S	crevices in rocky reefs, kelp beds	rocky reefs, kelp beds	susceptible to withering syndrome disease	planktonic	4-7 days	low

Species	Primary depth range (feet) (x 0.305 = meters)	Primary Geographic range within state using four regions	Habitat preference juveniles	Habitat preference adults	Unique or significant life history characteristics	Larval type	Larval duration [potential larval dispersal]	Potential for adult dispersal (vagility)
Abalone, flat	20-70	All regions, including islands	crevices in rocky reefs, kelp beds	rocky reefs, kelp beds	generally a cryptic species	planktonic	4-7 days	low
Abalone, pinto	Intertidal to 70	N,NC,SC	crevices in rocky reefs, kelp beds	rocky reefs, kelp beds	commonly found at approx. 4-inch length	planktonic	4-7 days	low
Abalone, red	Intertidal to 100	All regions, including islands	crevices in rocky reefs, kelp beds, boulder outcrops, under canopy of red urchins	rocky reefs, kelp beds, boulder outcrops	largest abalone species in the world	planktonic	4-7 days	low
Clam, California jackknife	Intertidal to	South, mainland and islands	sandy mud, estuaries	sandy mud, estuaries	occupies a permanent burrow	planktonic	unknown	low
Clam, chione (several species)	Intertidal to 165	South, mainland and islands	mud, sand, estuaries	mud, sand, estuaries	smooth chione subject to habitat loss due to harbor development	planktonic	unknown	low
Clam, littleneck (several species)	Intertidal	All regions, including islands	cobble beds	cobble beds	prized food item	planktonic	unknown	low
Clam, gaper (several species)	Intertidal to 150	All regions	sand, sand/mud, estuaries	sand, sand/mud, estuaries	may live to 17 years	planktonic		low
Clam, geoduck	0-360	All regions	sand/mud, estuaries	sand/mud, estuaries	individuals may exceed 10 pounds	planktonic	2 weeks	low
Clam, Manila	Intertidal	All regions	sand/mud, estuaries	sand/mud, estuaries	introduced from Japan; important recreational species	planktonic	3 weeks	low
Clam, Pismo	Intertidal to 80	SC,S	exposed sand	exposed sand	primary prey item of California sea otters	planktonic	pelagic phase 2-3 days	low
Clam, razor	Intertidal and shallow subtidal	N,NC,SC	exposed sand	exposed sand	individuals can bury themselves in 7 seconds	planktonic	8 weeks	low
Clam, softshell	Intertidal	N,NC,SC	mud	mud	may have been introduced with eastern oyster	planktonic	unknown	low

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Clam, Washington (several species)	Intertidal to 100	All regions	sand/mud, estuaries	sand/mud, estuaries	known to concentrate paralytic shellfish poisoning toxin	planktonic	4 weeks	Low
Cockles	Intertidal to 660	All regions, including islands	sand, sand/mud, mud, estuaries	sand, sand/mud, mud, estuaries	one species may live to 16 years	planktonic	unknown	Low
Limpets	Intertidal to 100	All regions, including islands	rocky reefs	rocky reefs	some species may live 15 years	planktonic	less than 1 week	Low
Mussels (several species)	Intertidal to 130	All regions, including islands	rocky reefs, pilings	rocky reefs, pilings	bio-accum-ulator of toxins.	planktonic	1 month	Low
Octopus (several species)	Intertidal to 660	All regions, including islands	rocky reefs, kelp beds, soft bottom	rocky reefs, kelp beds, soft bottom	eggs are attached to substrate and brooded by females	planktonic	1 month or less	Low
Scallop, rock	Intertidal to 100	All regions, including islands	rocky reefs, pier pilings, rock jetties	rocky reefs, pier pilings, rock jetties	intolerant of salinity less than 25 ppt	planktonic	5 weeks	Low
Sea hare (two species)	0-60	NC,SC,S	hard and soft bottom, kelp beds	hard and soft bottom, kelp beds	large nerve ganglia make them useful for research	planktonic	4-5 weeks	Low
Sea stars (many species)	Intertidal to deepest canyons	All regions, including islands	rocky reefs, hard bottom, sand	rocky reefs, hard bottom, sand	some species adapted to exposure at low tides	planktonic	unknown	Low
Snail, moon	Intertidal to 500	All regions, including islands	soft bottom	soft bottom	has aquiferous system of spongy sinuses in foot	planktonic	2 weeks	low
Snail, turban (several species)	Intertidal to 250	All regions, including islands	shallower rocky reefs, kelp beds, including canopy	rocky reefs, kelp beds, including canopy	feeds primarily on kelp and coralline algae	planktonic	unknown	low
Worms (polychaetes)	Intertidal to deepest canyons	All	rocky reefs in mussel beds, cobble beds, soft bottom	rocky reefs in mussel beds, cobble beds, soft bottom	several species have toothed proboscis	planktonic	variable	low
Algae								
Gelidium sp. (many species)	Intertidal, to 100	All regions, including islands	rocky reefs	rocky reefs	may form mats of algal turf	not applicable	not applica-ble	none

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Gracilaria sp. (many species)	Intertidal to 50	All regions, including islands	soft bottoms	soft bottoms	used as spawning substrate by herring in SF Bay	not applicable	not applica-ble	none
Porphyra sp. (many species)	Intertidal to 100	All regions, including islands	rocky reefs	rocky reefs	may be common in high-energy surf zones	not applicable	not applica-ble	none
Sea palm	Intertidal	N,NC,SC	exposed rocky reefs	exposed rocky reefs	individuals can regenerate blades but not stipe	not applicable	not applica-ble	none
Kelp, giant	20-120	NC,SC,S	on sand and rock substrate	on sand and rock substrate	fronds may grow up to 24 inches per day	not applicable	not applica-ble	none
Kelp, bull	Oct-70	N,NC,SC	on rock or cobble substrate	on rock or cobble substrate	found where water temp is less than 60 F	not applicable	not applica-ble	none

Note: N= North Coast; NC= North-Central Coast; SC= South Central Coast; S= South Coast

Appendix II: Table (c). Special Status Species Likely to Occur in North Central California. (This list was originally compiled by NOAA staff to represent species expected to occur in the Monterey Bay National Marine Sanctuary and has been edited to include other species of the MLPA North Central Coast Study Region).

Mammal Common Name	Scientific Name	Federal Status	State Status	Other Status
Blue whale	<i>Balaenoptera musculus musculus</i>	E		MMPA
Fin whale	<i>Balaenoptera physalus</i>	E		MMPA
Humpback whale	<i>Megaptera novaeangliae</i>	E		MMPA
North Pacific right whale	<i>Eubalaena japonica</i>	E		MMPA
Gray whale	<i>Eschrichtius robustus</i>	D		MMPA
Sei whale	<i>Balaenoptera borealis</i>	E		MMPA
Sperm whale	<i>Physeter macrocephalus</i>	E		MMPA
Killer whale	<i>Orcinus orca</i>	PT, SC (NMFS)		MMPA
Dall's porpoise	<i>Phocoenoides dalli</i>			MMPA
Pacific white-sided dolphin	<i>Lagenorhynchus obliquidens</i>			MMPA
Risso's dolphin	<i>Grampus griseus</i>			MMPA
Northern right whale dolphin	<i>Lissodelphis borealis</i>			MMPA
California sea lion	<i>Zalophus californianus</i>			MMPA
Steller sea lion (Eastern stock)	<i>Eumetopias jubatus</i>	T		MMPA
Guadalupe fur seal	<i>Arctocephalus townsendi</i>	T	T	MMPA
Northern fur seal	<i>Callorhinus ursinus</i>			MMPA
Harbor seal	<i>Phoca vitulina</i>			MMPA
Northern elephant seal	<i>Mirounga angustirostris</i>			MMPA
Southern sea otter	<i>Enhydra lutris nereis</i>	T		MMPA

Bird Common Name	Scientific Name	Federal Status	State Status	Other Status
Common loon	<i>Gavia immer</i>		SSC	
Short-tailed albatross	<i>Phoebastria albatrus</i>	E	SSC	
Black-footed albatross	<i>Phoebastria nigripes</i>	SC (FWS)		
Dark-rumped petrel	<i>Pterodroma phaeopygia</i>	E		
Ashy storm-petrel	<i>Oceanodroma homochroa</i>	SC (FWS)	SSC (SP)	
Fork-tailed storm-petrel	<i>Oceanodroma furcata</i>		SSC (FP)	
Black storm-petrel	<i>Oceanodroma melania</i>		SSC (TP)	
California brown pelican	<i>Pelecanus occidentalis californicus</i>	E	E	
American white pelican	<i>Pelecanus erythrorhynchos</i>		SSC (FP)	
American bittern	<i>Botaurus lentiginosus</i>	SC (FWS)		
Least bittern	<i>Ixobrychius exilis</i>		SSC (TP)	
White-faced ibis	<i>Plegadis chihi</i>	SC (FWS)		
Harlequin duck	<i>Histrionicus histrionicus</i>	SC (FWS)	SSC (FP)	
California clapper rail	<i>Rallus longirostris obsoletus</i>	E	E	
California black rail	<i>Laterallus jamaicensis coturniculus</i>	SC (FWS)	T	
Western snowy plover	<i>Charadrius alexandrinus nivosus</i>	T	SSC	
Black oystercatcher	<i>Haematopus bachmani</i>	SC (FWS)		
Whimbrel	<i>Numenius phaeopus</i>	SC (FWS)		

Long-billed curlew	<i>Numenius americanus</i>	SC (FWS)		
Marbled godwit	<i>Limosa fedoa</i>	SC (FWS)		
Black turnstone	<i>Arenaria melanocephala</i>	SC (FWS)		
Red knot	<i>Calidris canutus</i>	SC (FWS)		
Elegant tern	<i>Sterna elegans</i>	SC (FWS)	SSC (TP)	
California least tern	<i>Sterna antillarum browni</i>	E	E	
Black tern	<i>Chlidonias niger</i>	SC		
Caspian tern	<i>Sterna caspia</i>	SM	BCC	
Gull-billed tern	(<i>Sterna nilotica</i>)	SC	BCC	
Royal tern	(<i>Sterna maxima</i>)	SC	BCC	
Marbled murrelet	<i>Brachyramphus marmoratus marmoratus</i>	T	E	
Xantus's murrelet	<i>Synthliboramphus hypoleucus</i>	SC (FWS) - Candidate	T	
Cassin's auklet	<i>Ptychoramphus aleuticus</i>	SC (FWS)	SSC (SP)	
Rhinoceros auklet	<i>Cerorhinca monocerata</i>		SSC (TP)	
Double-crested cormorant	<i>Phalacrocorax auritus</i>		SSC	
Black-crowned night heron	<i>Nycticorax nycticorax</i>	SC		
"Tule" greater white-fronted goose	<i>Anser albifrons elgasi</i>		SSC (SP)	
Canadian goose	<i>Branta canadensis leucopareia</i>	T		
"Aleutian" and "cackling" canada goose	<i>Branta canadensis minima</i>	D	SSC (SP)	
Saltmarsh common yellowthroat	<i>Geothlypis trichas sinuosa</i>	SC		
Black brant	<i>Branta bernicla nigricans</i>		SSC (TP)	
Redhead	<i>Aythya americana</i>		SSC (SP)	
Bufflehead	<i>Bucephala albeola</i>		SSC (TP)	
Osprey	<i>Pandion haliaetus</i>		SSC	
White-tailed kite	<i>Elanus leucurus</i>	SC		
Northern harrier	<i>Circus cyaneus</i>		SSC, SSC (SP)	
Sharp-shinned hawk	<i>Acipiter striatus</i>		SSC	
Cooper's hawk	<i>Accipiter cooperi</i>		SSC	
Ferruginous hawk	<i>Buteo regalis</i>	SC	SSC	
Golden eagle	<i>Aquila chrysaetos</i>		SSC	
Bald eagle	<i>Haliaeetus leucocephalus</i>	T	E	
Merlin	<i>Falco columbarius</i>		SSC	
American peregrine falcon	<i>Falco peregrinus anatum</i>	D, SC	E	
Yellow rail	<i>Coturnicops noveboracensis</i>		SSC, SSC (SP)	
Greater sandhill crane	<i>Grus canadensi tabida</i>		T	
Long-billed curlew	<i>Numenius americanus</i>	SC		
California gull	<i>Larus californicus</i>		SSC	
Willow flycatcher	<i>Empidonax traillii</i>		E	
Black skimmer	<i>Rynchops niger</i>	SC	BCC	
Tufted puffin	<i>Fratercula cirrhata</i>		SSC (FP)	

Reptile Common Name	Scientific Name	Federal Status	State Status	Other Status
Leatherback sea turtle	<i>Dermochelys coriacea</i>	E		

Loggerhead sea turtle	<i>Caretta caretta</i>	T		
Pacific ridley sea turtle	<i>Lepidochelys olivacea</i>	T		
Green sea turtle	<i>Chelonia mydas</i>	T		

Fish Common Name	Scientific Name	Federal Status	State Status	Other Status
Chinook salmon (spring run) Sac Rv and tributaries	<i>Oncorhynchus tshawytscha</i>	PT, T	T	
Chinook salmon (fall/late fall run) Sacramento river	<i>Oncorhynchus tshawytscha</i>	SC (NMFS) - Candidate	SSC	
Chinook salmon (winter run) Sacramento River	<i>Oncorhynchus tshawytscha</i>	PT, E	E	
Chinook salmon (California Coastal) Redwood Ck to Russian River	<i>Oncorhynchus tshawytscha</i>	T		
Coho salmon (central CA coast ESU)	<i>Oncorhynchus kisutch</i>	PE, T	E	
Steelhead (central CA coast ESU) Russian Rv to Soquel Creek	<i>Oncorhynchus mykiss irideus</i>	PT, T		
Steelhead (Northern California) Redwood Ck to Gualala River	<i>Oncorhynchus mykiss</i>	T		
Steelhead (CA central valley)	<i>Oncorhynchus mykiss</i>	T		
Tidewater goby	<i>Eucyclogobius newberryi</i>	E	SSC (QE)	
Pacific lamprey	<i>Lampetra tridentata</i>	SC (FWS)		
White sturgeon	<i>Acipenser transmontanus</i>	E		
Green sturgeon	<i>Acipenser medirostris</i>	SC (NMFS) - Candidate	SSC (QT)	
Cowcod	<i>Sebastes levis</i>	SC (NMFS)		
Bocaccio	<i>Sebastes paucispinis</i>	SC (NMFS)		
Canary rockfish	<i>Sebastes pinniger</i>	Overfished		
Longfin smelt	<i>Spirinchus thaleichthys</i>	SC		
California ("tomales") roach	<i>Lavinia symmetricus</i>		SSC	
Eulachon	<i>Thaleichthys pacificus</i>		SSC (WL)	
Bluefin tuna	<i>Thunnus thynnus</i>	SC		
Swordfish	<i>Xiphias gladius</i>	SC		
White shark	<i>Carcharodon carcharias</i>		Protected species	IUCN, CITES, CMS

Invertebrate Common Name	Scientific Name	Federal Status	State Status	Other Status
Black abalone	<i>Haliotis cracherodii</i>	SC (NMFS)		
Pinto abalone	<i>Haliotis kamtschatkana</i>	SC (NMFS)		
Sandy beach tiger beetle	<i>Cicindela hirticollis gravida</i>	SC		

Plant Common Name	Scientific Name	Federal Status	State Status	Other Status
Beach layia	<i>Layia carnosa</i>	E		
Northcoast sand verbena	<i>Abronia umbellata ssp. breviflora</i>	SC		
Sea palm	<i>Postelsia palmaeformis</i>	SC		

Index of the listing codes used in the tables above

FEDERAL LISTING CODES	
ESA: Endangered Species Act of 1973 Listing Codes	
E	Federally listed as Endangered
T	Federally listed as Threatened
D	Federally delisted
PE	Proposed for federal listing as Endangered
PT	Proposed for federal listing as Threatened
PD	Proposed for federal de-listing
Candidate	Candidate for federal listing as endangered or threatened
SC	Species of Concern
SC (NMFS)	Species of Concern by the National Marine Fisheries Service
SC (FWS)	Species of Concern by the US Fish and Wildlife Service

STATE LISTING CODES	
CESA: California Endangered Species Act Listing Codes	
E	State-listed as Endangered
T	State-listed as Threatened
CE	Candidate for state listing as Endangered
CT	Candidate for state listing as Threatened
SSC	Species of Special Concern
BCC	Bird of Conservation Concern
	QE Qualify as Endangered (fish list)
	QT Qualify as Threatened (fish list)
	WL Watch List (fish list)
	FP First Priority (bird list)
	SP Second Priority (bird list)
	TP Third Priority (bird list)

OTHER STATUS CODES	
MMPA	Protected under the Marine Mammal Protection Act
IUCN	Included in the World Conservation Union's Red List of Vulnerable Species
CITES	Protected under the Convention of International Trade in Endangered Species of Fauna and Flora
CMS	Protected by the Convention on Migratory Species

Sources for special status species list:
Original list from MBNMS
Point Reyes Giacomini Project Species List: http://www.nps.gov/archive/pore/pdf/home_mngmntdocs/giacomini/site_background/table4.pdf
Point Reyes Threatened, Rare, and Endangered Species List: http://www.nps.gov/archive/pore/nature_wldlf_tande.htm

Sources for special status species list:

Airamé, S., S. Gaines, and C. Caldow. 2003. Ecological Linkages: Marine and Estuarine Ecosystems of Central and Northern California. NOAA, National Ocean Service. Silver Spring, MD. 164 p.

Mills, K. L., Sydeman, W.J. and Hodum, P. J. (Eds.), 2005. The California Current Marine Bird Conservation Plan, v. 1, PRBO Conservation Science, Stinson Beach, CA.

California ESA status: <http://www.dfg.ca.gov/whdab/pdfs/TEAnimals.pdf>

Federal ESA status: <http://www.nmfs.noaa.gov/pr/species/esa.htm>