



original painting by Ken Goldammer for SCNPC  
prints available at goldammer.com

## Land Sculpted by Sky and Sea

### At First Glance...

Ocean vistas and sculpted sandstone cliffs greet visitors at this unique City of San Diego Regional Park on the western shoreline of the Point Loma Peninsula. Sea mist laden breezes calm the senses along the 1.5 mile cliffside trail. The dynamic mix of air, land, and sea offers opportunities to observe, learn, experience, and enjoy nature.

Surfers slice arcs across the breaking waves. Painters and photographers capture their favorite scenes. Bird watchers raise their binoculars to check out a sighting. Stands of coastal sage scrub add their signature aroma as hikers follow undulating coastal terraces in the 68-acre open-space park.

Brown pelicans soar in formation, dip toward the cliffs, and then suddenly veer away. They bound over the waves on a burst of air as if on a roller coaster. One dives into the surf, targeting a fish. Offshore, forests of giant kelp reach from the ocean floor toward the sun. Beyond the kelp, spouting California gray whales glide through the ocean depths during their winter migration.

Late afternoon and sunset are special times in the park. As the sun moves lower in the western sky, slanting rays filter through the shifting clouds that cluster near the horizon. White sparkles of light dance and glisten on the ocean surface. In the golden light and lengthening shadows, the cliffs turn shades of intense orange and copper.



Brandt's Cormorant

Karen Straus

The sun moves lower, sliding in and out of the clouds, changing in shape. Sky, clouds, and ocean foam take on shades of pink, purple, and orange. After the sun sinks below the horizon, the gray dusk turns the ocean silver.

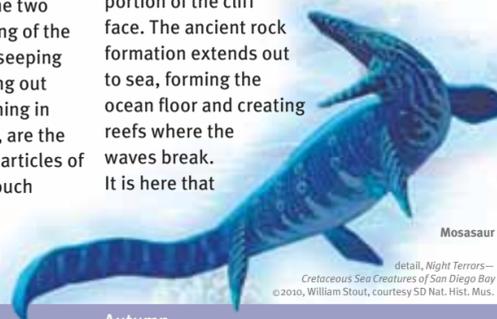
### A Sculpting Process in Time...

There is the land. There is the sea. The two embrace. Flowing down to this meeting of the elements is a course of winter rains, seeping through porous sandstone and flowing out onto the cliff face. In opposition, rushing in from the sea and lapping at the cliffs, are the ceaseless waves, carrying abrasive particles of rock, sand, and shell that add their touch to the sculpting process.

Over time, the line between land and sea moves sinuously in and out, filling the hollows with water or land, spray or sand. At other times the hollows may be filled with sharp orange slices of light or a bowlful of fog, jade green anemone blossoms or human footprints, a dark low mossy cave, or a soaring vault with a ceiling of clear blue sky. Sunset Cliffs Natural Park focuses our attention on this gathering of beauty.

### Unfolding Story in Motion...

Around one million years ago dynamic tectonic action began to lift the peninsula of Point Loma above sea level. The 75 million year-old Cretaceous Era Point Loma Formation is the bedrock of the park and most of the peninsula. The dinosaur-era shale is the dark gray geologic strata visible on the lower portion of the cliff face. The ancient rock formation extends out to sea, forming the ocean floor and creating reefs where the waves break. It is here that



Mosasaur

detail, *Night Terrors—Cretaceous Sea Creatures of San Diego Bay*  
© 2010, William Stout, courtesy SD Nat. Hist. Mus.

tidepools, crevices and depressions become nurseries for sea life. Fossilized bones of a mosasaur, a thirty-foot long marine lizard, and fossilized shells of ammonites and giant clams have been discovered in the Point Loma Formation. Many of these gems are displayed at the San Diego Natural History Museum.

The sand colored Bay Point Formation sits above the Point Loma Formation, forming the upper half of the cliff face. This porous sandstone layer is young in geologic time compared to the Point Loma Formation. It formed less than 120,000 years ago during what is known as the Ice Ages in the Pleistocene Epoch. The ocean level fell during each Ice Age, then rose with the melting of the ice that covered much of the earth. Each time, sediment moved, and additional deposits of sand were added. It is this porous layer of sandstone that is particularly vulnerable to erosion. It has a tendency to collapse and slump into the ocean, and as it disintegrates, it deposits sand onto beaches.

In contrast, the lower dinosaur-era Point Loma Formation is harder and more resistant to erosion. However, seismic related fractures form

areas of weakness in the shale, allowing water to attack the cliffs – creating the caves, sea arches, and promontories characteristic of the Sunset Cliffs Natural Park coastline.

### Celebrating the Biodiversity... Plants and Animals

The hillside section of Sunset Cliffs Natural Park, a designated Multiple Habitat Preservation Area (MHPA), provides connectivity to the adjacent 650-acre government protected Point Loma Ecological Reserve. This reserve, established to preserve the endangered coastal sage scrub habitat, begins at Cabrillo National Monument and extends north through federal and city property to the southern park boundary.

There is tremendous biodiversity in the park. Over 80 native plant species live in the semi-arid coastal climate of Point Loma. For example, the lemonadeberry's thick leaves retain moisture and remain green throughout the year, while the narrow leaves of the sagebrush and buckwheat preserve moisture by reducing the plants' surface area. Typically the native plants thrive on rain water, turning green and blooming in response to



Shaw Agave

Margaret Fillius



Gray Fox

Vic Monamus

seasonal rains. During the summer dry season, some of these native plants turn brown and look bare during their time of dormancy.

More than 10 species of reptiles inhabit the wildlife corridor, including the western fence lizard and striped racer snake. These cold blooded animals are commonly seen basking in the sun.

The coastal park is home to about 100 species of birds. Brown pelicans, seagulls, and cormorants are frequently seen diving for fish. Coastal sage scrub birds include the California towhee, which eats seeds with its cone-shaped bill. Many species of birds are year-round residents. Seasonal birds pause in the park as they migrate along the Pacific Flyway.

More than 20 species of mammals live in the park. Pocket mice, squirrels, and gophers provide a food source for the larger species, such as the gray fox.

### Spring



Faith Hussey

A palette of colors paints the coastal slopes. Against soft green, wildflowers smile at the sun. Gentle waves lap at the rocks below. The California towhee's "chink" call celebrates the lengthening day.

### Summer



Jason Richards / Cabrillo NHP

The soft morning fog recedes. Gray turns to blue and a shimmering, glorious day. A crab scurries across dark wet sand into a pool. On the trail, an alligator lizard basks in the sun and then darts into the fragrant sage.

### Autumn



Jonathan Louie

A warm breeze blows the fog out to sea. Orange sea arches are etched against intense blue. Pelicans glide in stately formation. The sun's yellow becomes gold, and for an instant emerald, as it dips beneath the crisply defined horizon.

### Winter



Ellen Quirk

The storm is over, its clouds now drifting east and away. In the low rays of winter sunlight, long rows of waves swell. They crash against majestic cliffs in a spray of white and sparkles. In the distance a gray whale's graceful fluke rises and then is gone.



Jonathan Louie



Jonathan Louie