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## Capstone Papers

### Title

Impacts and Implications of Power Plant Thermal Effluent Changes on Green Turtles (*Chelonia mydas*) in San Diego Bay, California.

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# **Impacts and implications of power plant thermal effluent changes on green turtles (*Chelonia mydas*) in San Diego Bay, California.**

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will be submitted with Jeffrey Seminoff

## **Introduction**

Found in San Diego, California, near the northern most part of its range in the eastern Pacific, this endangered green sea turtle (*Chelonia mydas*) population is one of twenty separately managed Pacific stocks (Chaloupka, Dutton and Nakano, 2004; Dutton, Broderick and Fitzsimmons, 2002). Globally recognized as endangered by the World Conservation Union (IUCN), green sea turtle populations of this region have been significantly reduced due to human consumption of eggs and meat in addition to mortality related to bycatch of commercial and artisanal fisheries (National Marine Fisheries Service and US Fish and Wildlife Service, 1998; Seminoff, 2002). Observed in the San Diego Bay year-round, the resident green turtles frequently rest in the warm-water effluent discharge channel of a large power plant, especially during the winter months, and forage primarily on eelgrass, *Zostera marina* (Stinson, 1984; Dutton & McDonald, 1990, 1991, 1992; NOAA, NMFS SWFSC, 2008). However, within the San Diego Bay, high-traffic port, harbors, and terminals, in addition to a U.S. Naval Base and water-intensive industrial activities such as a power plant using millions of gallons of bay water every day, present numerous threats for the sea turtles residing in the southern section of the San Diego Bay (U.S. Navy & Port of San Diego, 2007).

The South Bay Power Plant (SBPP) began operating in 1960 and can produce over 700 mega watts (MW) of energy for Southern California residents when

operating at full capacity. However, the SBPP has been targeted as a power-source that will be decommissioned and removed, due to multiple reasons, each driven by the goal of more efficient and less-polluting technology to better fill the growing energy demand of the region's ever increasing coastal populations. Burning natural gas, the SBPP's four steam-powered generating units use water from the Bay to remove excess heat through a system called "once-through cooling", OTC (Unified Port of San Diego, 2008; U.S. Navy & Port of San Diego, 2007; CEC, 2007). During this cooling process, up to 601 million gallons (2,275 million L) of seawater per maximum operating day is drawn in and then discharged back into the bay where it may be as much as 3.9°C warmer than its initial temperature (Lyon *et al.* 2006; RWQCB, 2009). A 2.1 km earthen dike, built in 1963, separates the intake water from the outflow effluent. This strategically designed formation, in combination with the location of the power plant near the end of a long and narrow bay, has helped to minimize some of the negative impacts that are often associated with OTC power plants and the impingement of large animals such as marine turtles. Gradually being replaced by newer technology such as dry-cooling and closed-cycle cooling, both have a less negative impact on marine and freshwater ecosystems, OTC power plants were the focus of a recent case heard by the U.S. Supreme Court.

The April 1, 2009 *Entergy Corp. v. Riverkeeper Inc., et al.* ruling addressed whether the Clean Water Act's Section 316(b) forbade the Environmental Protection Agency (EPA) from considering cost-benefits analysis regarding the existing 550 OTC power plants, including the SBPP. While the Court ruled that cost-benefit analysis was not forbidden and that it remains the responsibility of Obama-Jackson

EPA to determine such practices, the state of California has pending legislation in the Senate, SB42 authored by Sen. Ellen Corbett, D-San Leandro, regarding the mandated phasing-out of OTC power plants. Nearly 50 years old and using outdated old post-World War II OTC technology, the SBPP has been designated as a coastal power plant approaching its decommissioning point, which may be as early as 2011 (CEC, 2007; T. Liebst pers. comm.).

## **Methods**

Open water covers 4,262 hectares (ha) and tidelands cover 1,788 ha of the San Diego Bay that stretches 25 km in length and has 87 km of shoreline (Merkel & Associates, 2008). The bay's depth ranges from 15.2-22.5 m below MLLW in the dredged shipping channels in the northern part of the bay, but most of the bay is less than 15 m below MLLW, with the southern ecological region found south of the Sweetwater Marsh averaging less than 4.6 m below MLLW (U.S. Navy & Port of San Diego, 2007; Merkel & Associates, 2008). The discharge channel of the SBPP covers 116 ha of the southern section of the Bay and extends approximately 1.5 km west from the SBPP, and is 4.6 m wide at the point of discharge, widening to 366 m at the far end. San Diego Bay's wide range of depths and large amount of coastline provides for a variety of tidal and subtidal habitats, including 333 ha of salt marsh, 396 ha of tidal flats, 431 ha of eelgrass beds, 73 km of hard substrate and fouling communities, and 3,776 ha of mud and sand bottom assemblages in shallow to deep water (U.S. Navy & Port of San Diego, 2007).



While monitored since the 1970s, scientists from the National Oceanic and Atmospheric Agency's (NOAA) National Marine Fishery Service (NMFS) Southwest Fishery Science Center (SWFSC) began using 50cm-stretched mesh monofilament live entanglement nets to capture green turtles at various locations throughout the discharge channel in 2002. Twice a month for six to seven months, we set and monitored three entanglement nets in the channel, each approximately 6m deep and ranging 70m to 120m in length, for approximately five hours. When observed in a net, we retrieved the entangled turtle and brought it to the shore along the edge of the discharge channel for biological assessment, identification and tagging. Data collected contributes to a larger population assessment study using the capture-mark-recapture approach and has been ongoing for over two decades (Dutton & McDonald, 1990; J. Seminoff & T. Eguchi, pers. comm.). Capture effort prior to 2002 varied in technique and frequency and therefore are not considered here. Given the detail of data recorded, one unit of effort as reported in catch per unit effort (CPUE) here is equal to the number of turtles captured per day, for each turtle-monitoring season, which ran from the fall through late spring.

The operators of the SBPP constantly monitor the surface temperature (0-1 m) of water taken in and also discharged per the SBPP's federal Clean Water Act National Pollutants Discharge Elimination System (NPDES) permit requirements which allows a maximum daily average difference between the thermal discharge and the cold-water intake of 8.3°C, and an instantaneous difference of no greater than 13.9°C (RWQCB, 2009). Provided directly by the SBPP, operated by Dynegy, temperature data used in this initial study was collected once a week at noon (PST) at

both the intake channel and the discharge channel. Other surface temperature data used and collected at different locations in the Bay include SBPP thermal plume monitoring stations and NOAA monitoring buoys, one location, the “North Bay,” is in a Naval Port in the north section of the bay and the other buoy is located 11.3km off shore from Mission Bay (National Data Buoy Center, 2009).

## **Results**

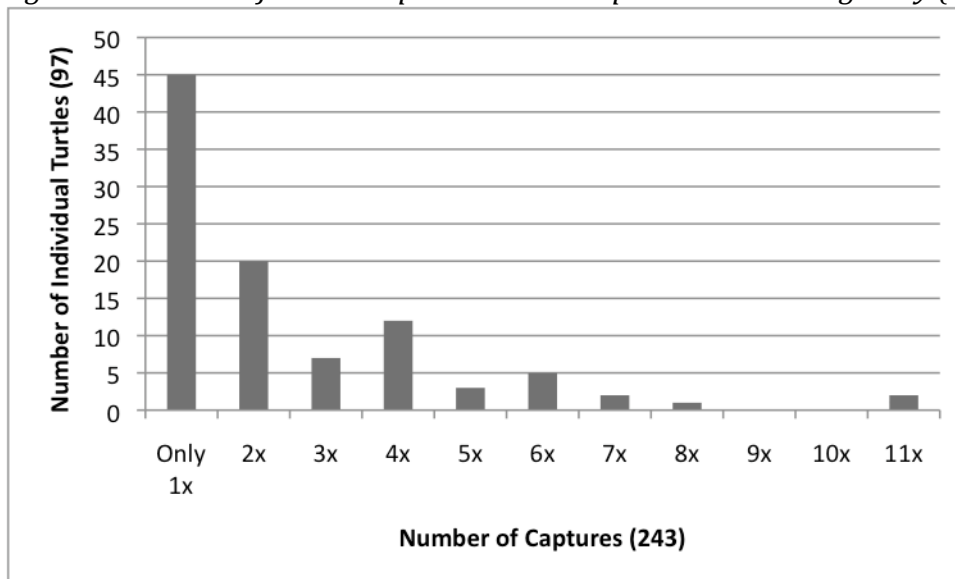
Each monitoring season began in either October or November and ended in either April or May and the maximum number of observation days in one season was during the 2006-2007 season, with 13 days, and the fewest number of observation days was 7 days in the 2002-2003 season. The number of turtles captured each day, as well as the total number of days out each season that zero turtles were captured, is given in the table below and ranged from a maximum number of turtles captured in one season at 30 turtles in the 2006-2007 season, and the fewest number of turtles, 15 and 16, were caught in the 2005-2006 and 2008-2009 seasons, respectively. Prior to the 2006-2007 season, at least one turtle was always captured when SWFSC researchers were out at the SBPP site. But in 2006-2007, there were three (3) of the 13 days out (23%) in which no turtles were caught, the 2007-2008 season had one (1) of 11 days (9%) with zero turtles caught, and the 2008-2009 season had the most number of zero-days at five (5) out of 11 days (45%).

Table 1: 2002-2009 NOAA SWFSC Turtle Monitoring at San Diego Bay, CA

Season	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009
<b>Turtles Caught</b>	29	26	29	15	30	27	16
<b>Days Out</b>	7	8	9	9	13	11	11
<b>CPUE</b>	4.14	3.25	3.22	1.67	2.38	2.45	1.27
<b>Days "0" Turtles Caught</b>	0 of 7; 0%	0 of 8; 0%	0 of 9; 0%	0 of 9; 0%	3 of 13; 23%	1 of 11; 9%	5 of 11; 45%
<b>Power Plant Annual Average Operating Capacity</b>	2002: 21.5%	2003: 23.2%	2004: 33.1%	2005: 26.5%	2006: 15.9%	2007: 13.3%	2008: 17.4% Estimated (Jan-Apr) 2009: 10.2%

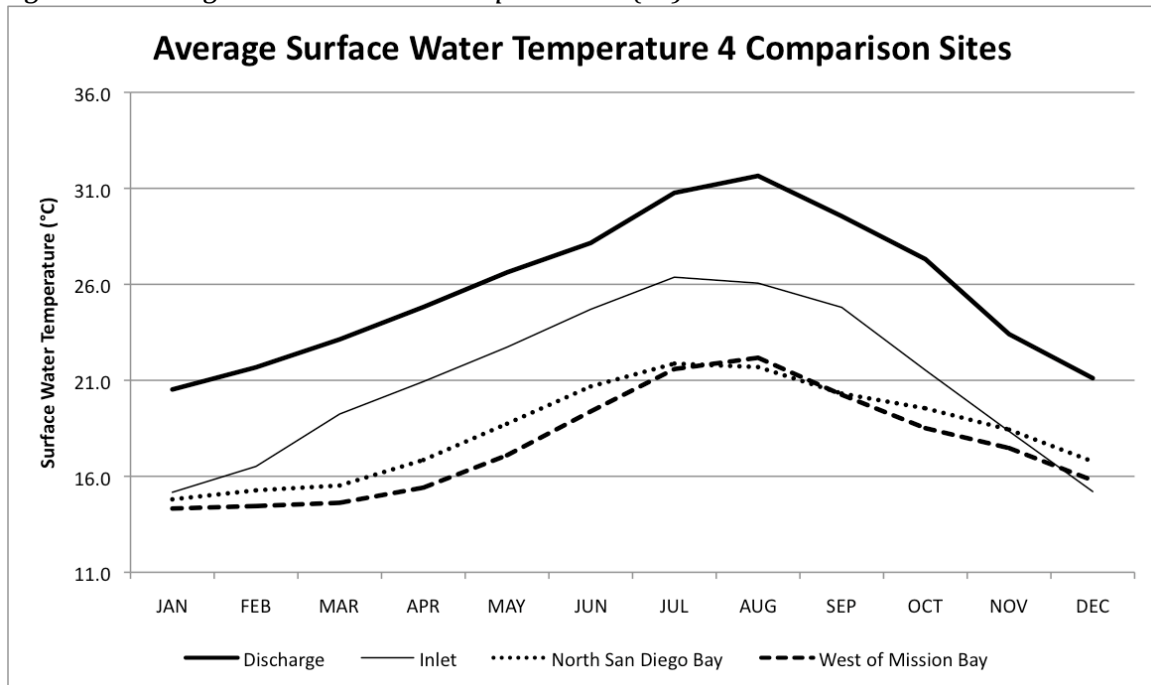
Identified by either an external flipper tag and or an internal (passive internal transmitter, PIT) tag, 97 individual turtles have been captured a total of 243 times since 1990. Just over half of the 97 individual turtles, 52 (53.6%), have been recaptured at least once. Currently, SWFSC scientists, estimate the population size of the resident green turtles in the San Diego Bay to be approximately 60 individuals based on the proportion of recapture (T. Eguchi, 2009, pers. comm.).

Figure 1: Number of Turtle Captures and Recaptures at San Diego Bay (1990-2009)



Varying by season, surface temperature monitored at four different sites show winter temperatures between 12.8-18.3°C in the coastal ocean, North Bay, and the inlet, and as warm as 20.0-23.9 °C in the discharge channel. During the summer, the coastal ocean water and the North Bay warms to 22.2°C, while the inlet water nears 26.7°C and the discharge channel approaches 32.3°C and has been recorded over 38.9°C in July of 2004. The operating capacity of the SBPP determines the temperature difference between the water in the intake channel from that of the thermally warmed effluent water of the discharge channel by releasing increased quantities of hot water when more of the four generating units are running or are at higher intensities.

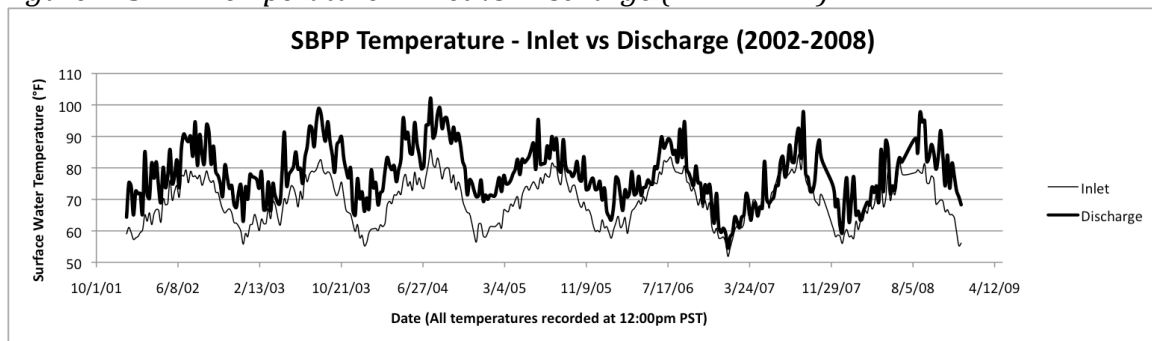
Figure 2: Average Annual Water Temperatures (°C)



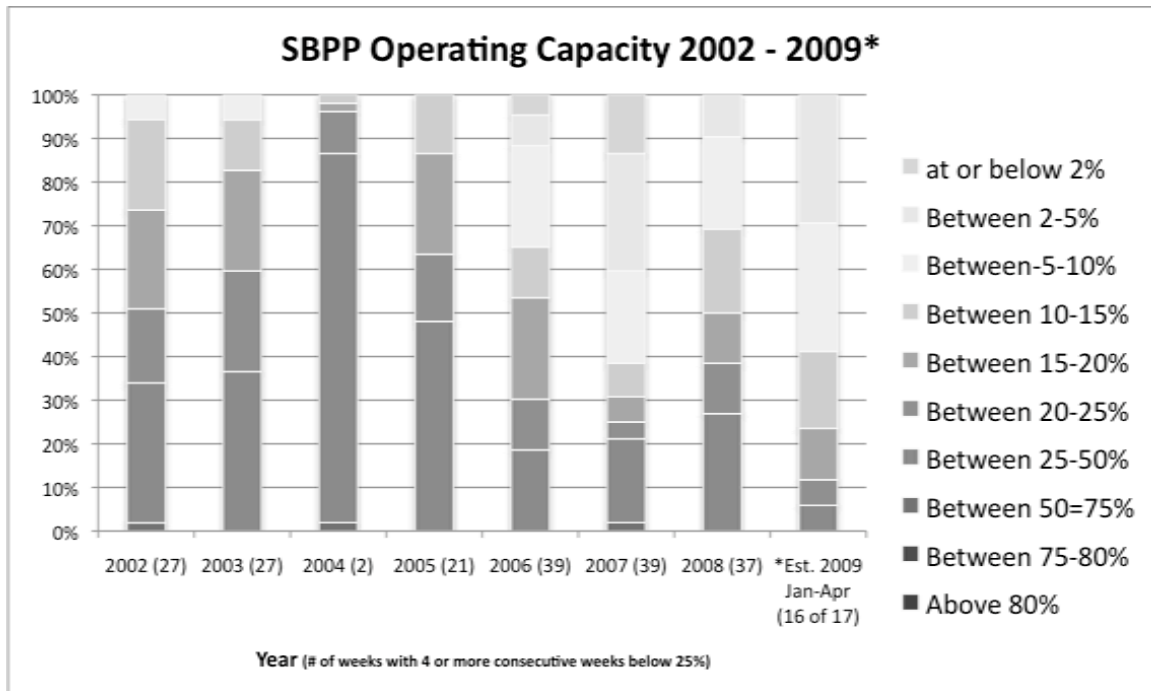
Past assessments for Marine Mammal Protection Act permits for other Duke Energy operated power plants (the operators of SBPP until Dynegy took over), have cited historical average annual generation capacity-factor-levels for the SBPP from

April 1999 to December 1999 at 29.32%, and from January 2000 to October 2000 the level was a 38.56%. When compared to the 2002-2008 operating capacity, these historical values are higher than all 2002-2008 levels, except 2004 when the plant generated at an annual average of 33.1%. The first four of the seven years examined each operated above 20% (2002-2008; 21.5%, 23.3%, 33.1%, 26.5% respectively), while the last three years operated slightly lower (2006-2008; 15.9%, 13.3%, 17.4%). An average of the first four months (January-April) of each 2007 and 2008 yields an estimated 10.2% operation capacity for the first quarter of 2009. The lowest annual generation was in 2007, at 13.3%. Given this variation in operation capacity, the discharge channel averaged 4.8°C warmer than the inlet water's temperature during 2002-2008. The largest annual average difference between the discharge and inlet temperatures was in 2004 at 6.9°C, and the smallest difference was in 2007 at 2.0°C. Detailed temperatures for 2009 have not yet been made available.

*Figure 3: SBPP Temperature – Inlet vs. Discharge (2002-2008)*



*Figure 4: Operating Capacity of SBPP. In addition to percent of total operating capacity, for each year, the number of 4 or more consecutive weeks that the plant was running below 25% is given.*



## Discussion

The CPUE for the three seasons between 2002-2005 was never below three turtles per day, and is higher than the CPUE for the four subsequent seasons from 2005-2009. Even more striking, we noticed that there has been at least one day in the last three seasons in which zero turtles were captured, ranging from 9-45% of the total days in the field for each season. This most recent season had an unprecedented five “zero-turtle” days out of 11 total days out, 45%. These data suggest that CPUE in the San Diego Bay’s SBPP’s discharge channel appears to be declining in recent years as compared to past years. The overall decline in CPUE over the last seven seasons considered here could be due to (1) the number of turtles in the bay declining, (2) behavioral changes of the turtles in response to the nets being used, or (3) a change in the spatial and/or seasonal distribution of the turtles.

First, a decline in the total population of resident turtles in the San Diego Bay could explain the decreasing CPUE, but this is not the case according to latest abundance estimates (T. Eguchi, pers. comm.). Mark-recapture studies show long-time resident individuals continuing to visit the San Diego Bay nearly 20 years later, and juveniles continue to be captured indicating new recruits are joining the resident population. Given these findings, the population is remaining constant, around 60 individuals, and we conclude that a declining population is not the reason for the decreasing CPUE (catchability), in recent years. Second, if the turtles were able to visually notice and then avoid the entanglement nets this could also lead to a decrease in catchability of the green turtles in the SBPP's discharge channel. However, this same method has been used in previous mark-recapture studies and by fishermen in Baja California Sur, Mexico for decades, with no indication that the turtles can see or purposefully avoid the nets (Seminoff *et al.* 2002a, 2002b; Seminoff *et al.*, 2003). Additionally, the discharge channel contains fine-grain sediment and very little vegetation, and this in combination with fluctuating tides creates turbid water turbid with poor visibility, making it even more unlikely that the turtles are able to avoid the nets (McDonald, 1994; Merkel & Associates, 2008; U.S. Navy & Port of San Diego 2000; 2007). Biofouling of the nets could make it possible for the turtles to avoid or escape from the nets, and extreme biofouling during the warmer months (May-September) is the primary reason NMFS scientists do not attempt to capture turtles year-round, yet during the observation season, the set nets are regularly cleared of algae biofoul during the day, and therefore is not likely a contributing reason to declining catchability.

Finally, a shift in the distribution of preferred temperature regions throughout the south bay, as a result of changing effluent from the SBPP, could be cause for declining catchability. Created by the thermal effluent from the SBPP, the warmer water in the 21-22°C range forms a small and distinct refuge for the tropical green turtles, especially during winter months when the rest of the Bay is in the 16-17°C range. As the SBPP begins to operate at a lower capacity, the size of the distinctive warm water refuge in the discharge channel will be reduced and the water temperature will become more similar to the other shallow areas of the south bay, making it likely that the catchability within the discharge channel itself, where the monitoring takes place, would begin to decline.

Since their discovery and monitoring in the San Diego Bay, the green turtles are highly concentrated in the southern section of the south bay, primarily in the effluent channel. Stinson (1984) first noted the turtles to be concentrated in the effluent waters and Dutton and McDonald (1992) monitored the turtles in the bay using ultrasonic transmitters and found the turtles most frequently in the effluent channel. More recently, deployed time-depth recorders (TDR) have confirmed the use of the high-temperature discharge channel during the majority of the day, but especially during the day, mid-morning to early evening, when they then appear to disperse while foraging on eelgrass beds (Lyon *et al.*, 2006). Global positioning system (GPS) tracking during the last two seasons (2007-2008 and 2008-2009) further confirms the turtles use the SBPP effluent channel (NOAA unpublished data). The SBPP has been identified as a California coastal power plant that will be decommissioned in the next two to five years, pending significant legal and logistical



decisions by local, regional, state, and national parties and stakeholders and upon closure, the artificial warm water refuge will no longer be available to the resident green turtles (T. Liebst, pers. comm).

Reviews of the changing difference between the water temperature in the inlet and the discharge channel of the SBPP reveal that the SBPP is already beginning to operate at a lower capacity, and therefore the temperature of the water in the discharge channel is already becoming more similar to water temperature of the inlet channel. This could result in the turtles being less concentrated in the discharge channel given that there is a less of an incentive (in the form of a habitat with warmer water) for the turtles to regularly return to the effluent channel after foraging; this would lead to a more widely distributed spatial pattern of the resident green turtles. Additionally, a seasonal shift may occur in addition to a spatial shift.

Stinson (1984) originally proposed that the turtles left the San Diego Bay during the summer when, with the SBPP operating, the waters became too hot, but that the turtles later returned during the fall when the SBPP provided a refuge in the otherwise cool San Diego Bay. Dutton and McDonald (1991), however, observed turtles year round in the San Diego Bay, and their presence has been confirmed by continued studies. Elimination of the warm water refuge, especially during the winter months, may cause the turtles to seek shallower and warmer areas of the bay, go into winter-dormancy as has been observed in Baja lagoons (Felger *et al.*, 1976), or to migrate out of the bay, returning once the water warms. Similarly, once the SBPP is removed, the water in the south bay will no longer be excessively hot (32.2-37.8°C) during the late summer months when the turtles are thought to

migrate out of the effluent channel (Stinson, 1984). The full impact of the future closure of the SBPP and the removal of a warm-water habitat used by a federally protected endangered species warrants further study, as many coastal power plants using OTC technology will begin to be phased out nation-wide in the next decade. Another endangered species that has received attention regarding the impact of future policy decisions regarding power plant closures and associated thermal impacts is the Florida manatee (*Trichechus manatus latirostrus*) (Laist & Reynolds, 2005b).

As older power plants become scheduled for shutdown, concerns over the well-being of the animals that have become dependent on the artificially created warm-water habitats caused by industrial effluent are affecting policy and complicating decisions for power plant operators and overseeing agencies such as NOAA and the U.S. Fish and Wildlife Service (USFWS). In Florida, populations of the endangered manatee have become dependent on the warm water discharge from power plants during the winter months, largely because of human development isolating or eliminating natural springs that historically served as winter refuge (Laist & Reynolds, 2005b). This creates the need for science-informed policy when making decisions about the future of aging power plants that may impact threatened or endangered wildlife (Laist & Reynolds, 2005a). A 1997-1998 study focused on an aging power plant that was being updated to discharge its warm water effluent further offshore. The study found that upon the temporary elimination of the warm-water source, increased manatee mortalities from cold stress occurred when the animals remained in the cooler northern waters rather

than moving south to alternative warmer water refuges (Florida Fish and Wildlife Conservation Commission, 2008; Deutsch, 2008). This example shows one way how power plants, an anthropogenic impact on the marine environment, have altered ecosystems such that the removal of these sources may have negative effects on some animals that have become dependant on these artificial manmade habitats, as is the case for Florida's manatees.

The IUCN Redlist (2008) cautioned about the loss of such warm-water sites, particularly in regards to Florida's manatees, as significant and catastrophic mortalities would likely reduce the environmental carrying capacity (Deutsch, 2008). Our initial observations, however, suggest that catastrophic mortalities are not likely for the population of green resident turtles in the San Diego Bay following the closure of the SBPP, but that spatial and seasonal shifts can be expected and the possibility of winter dormancy should be noted and observed for when possible. The other difference between the green turtles' response to the elimination of a warm water refuge from that of the Florida manatees, is that while sea turtles exhibit natal homing and migration to and from foraging grounds, they do not teach and learn behaviors the way that manatees and their calves do (Packard *et al.*, 1989).

Given the currently available information, it is expected that the marine turtles in the San Diego Bay will be affected by the eventual shut down of the SBPP, but will not be negatively impacted nor critically harmed. In fact, it appears that the turtles are already responding to and adjusting to the reduced warm-water effluent generated by the lower operating levels of the SBPP during its initial pre-closure

period. This, however, should be addressed in continuing monitoring, including future Environmental Assessments, Environmental Impact Reports, and even Biological Opinions should decommissioning warrant action by federal agencies therefore making a Section 7 Consult by NMFS required per the Endangered Species Act. As a final note, additional coastal development can be expected once the SBPP is removed, and consideration needs to be given to the impact that future development will have on the endangered marine turtles and the bay's ecosystems.

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## **Communication of Social Significance of Research and Value of Natural Resources: In-Person and Supporting Materials**

By Cali Turner Tomaszewicz

### **In-Person:**

- Aquarium of the Pacific, Long Beach, CA
  - Earth Day Fest, with NOAA NMFS Outreach Coordinator
    - 4/26/09
    - Talked to ~200 people (largely parents & kids ages 5-15)
- Birch Aquarium, La Jolla, CA
  - Staff Meeting
    - 5/6/09
    - Presented to ~20 people
  - Volunteer Meeting (invited after 5/6 Staff Meeting)
    - 7/18/09
    - Will present to ~50 people
- Rancho Santa Fe Middle School, San Diego, CA
  - 6<sup>th</sup> Grade
    - 5/28/09
    - Talked to 6 classes of ~25 students each (~150 students)
- Pro Peninsula, San Diego, CA
  - Special Event
    - 5/28/09
    - Presented to ~25 people
- SIO, UCSD, La Jolla, CA
  - Capstone Symposium
    - 6/2/09
    - Presented to ~55 people
- Not Scheduled yet:
  - NOAA SWFSC, La Jolla, CA
    - Monthly Meeting

### **Public Resources:**

- Newsletter (see attached)
  - Distributed at speaking events
  - Emailed to those who signed up during speaking events
    - ~150 people between all events provided email contact info
- Newspaper Article
  - To be submitted to the San Diego Union Tribune by SIO's CMBC Tara Whitty (2<sup>nd</sup> year)
    - Was interviewed by Tara, after she observed a field day at the SBPP
    - This is part of a larger communication-based project by the 2<sup>nd</sup> year Ph.D. students at SIO's CMBC





COME LEARN ABOUT

San Diego Bay, Sustainable Development and



# Sea Turtles

Presented by Cali Turner Tomaszewicz  
Master's Candidate, Center for Marine Biodiversity and Conservation  
Scripps Institution of Oceanography, UCSD



## Learn More!

The South Bay Power Plant, scheduled to go off-line in 2-5 years, will eventually stop discharging warm water into the Bay.



Sea turtles are endangered animals, protected by the Endangered Species Act, and to understand the impacts of these policy changes, scientists study San Diego's sea turtles and the Bay's environment.

## What does the South Bay Power Plant have to do with the sea turtles?

### Key Findings:

- Population** remaining stable
- Location** of sea turtles different
- Movement** patterns changing
- Behaviors** are slightly different
- Sea turtles** are not harmed

Image below:

South end of San Diego Bay and model of warm water from power plant & turtle tracks.

Eastern Pacific Green Sea Turtles live in warm water areas of the Pacific Ocean including the San Diego Bay. Eelgrass, a favorite food of green sea turtles, grows in the bay and is also a sign of a healthy and diverse ecosystem that can support young fish, crabs, lobster and more! The power plant at the end of the bay discharges warm water that the turtles like to visit – they are often seen resting at the “jacuzzi”! (See picture below.) These turtles nest on beaches in Mexico, and eat & rest in the warm water of bays all along Mexico, Baja & San Diego!



## Save the Date!

Earth Day Fest

April 26<sup>th</sup>

Aquarium of the Pacific, Long Beach

Pro Peninsula

May 28<sup>th</sup> at 6:00pm

740 13th St., #502  
San Diego, CA  
92101

[www.propeninsula.org](http://www.propeninsula.org)

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Blog:

[sandiegoseaturtles.blogspot.com](http://sandiegoseaturtles.blogspot.com)

Twitter: [SDSeaTurtles](https://twitter.com/SDSeaTurtles)



## More About Sea Turtles & You

Sea turtles, charming reptiles of the ocean, can tell us important things about our environment and provide unique opportunities to create value for local communities if they are incorporated into sustainable planning and are thought of as a valuable social benefit, not a burden.

### Turtles in San Diego & Long Beach

Marine turtles, millions of years old, live throughout the world's oceans. Green sea turtles, one of six different types of sea turtles, have many favorite places to live – some places are better for nesting, and some for eating. San Diego Bay, like other lagoons on the Pacific coast, provides warm water and food, like eelgrass, for these turtles. Coastal power plants can make the water warm even in the winter. This is a reason, we believe, why sea turtles are found this far north.

### What happens when power plant closes?

Finding their way **naturally** into the San Diego Bay, turtles have probably been here since before people were! But San Diego is now a big city, and the impact that people have on sea turtles must be closely monitored. Today, we know sea turtles like the warm water from the power plant, but what will change when the power plant closes? NOAA studies this group of endangered sea turtles to find out.

### Scientists studying these turtles have learned a lot!

Studying this group of sea turtles for nearly 30 years, we know there are **50-100 turtles** in the San Diego Bay group, and just this past fall, more turtles were found in Long Beach! Nesting in Mexico and then returning to San Diego, new turtles gradually join the group too. The South Bay Power Plant, gradually shifting off-line, no longer makes the water as warm as it used to be, so we see the turtles moving around the south end of the bay more than they used to. But 50-100 turtles are still around, and they don't appear to be harmed by the changes, still eating and growing, they are **adapting well!** There's more to learn in Long Beach too!

### What it means to you...

**Sustainable development can benefit the economy, the environment and the sea turtles!** Sea turtles, like people, need a healthy environment to live in. If sea turtles are in the bay, we know the eelgrass is probably growing well, which is good because it creates a home for other animals too – like juvenile fish (ex: Halibut), crabs, and lobsters – benefiting fishermen and seafood eaters! Students get excited about science and school when they can study neat creatures like turtles (*right* Pro Peninsula's Ocean Connectors), and finally, planners that design ways for people to enjoy the turtles and the bay (kayaking, nature walkways, tourism) can benefit local cities **and** economies.





## **Communication of Social Significance of Research and Value of Natural Resources Using New Media Resources: Blog, Website**

By Cali Turner Tomaszewicz

What is a blog? Blogger is the free (and very easy to use) Google platform: “We created Blogger to give you an easy way to share your thoughts — about current events, what's going on in your life, or anything else you'd care to discuss — with the world. We've developed a host of features to make blogging as simple and effective as possible.”

Blog Website: “San Diego Sea Turtles” <http://sandiegoseaturtles.blogspot.com/>  
See below for full articles/posts.

Date	Post Title	Direct Link
April 6, 2009	Did you know that there are sea turtles in San Diego?!	<a href="http://sandiegoseaturtles.blogspot.com/2009/04/did-you-know-that-there-are-sea-turtles.html">http://sandiegoseaturtles.blogspot.com/2009/04/did-you-know-that-there-are-sea-turtles.html</a>
April 6, 2009	Interested in learning about San Diego's Sea Turtles?	<a href="http://sandiegoseaturtles.blogspot.com/2009/04/interesting-in-learning-about-san.html">http://sandiegoseaturtles.blogspot.com/2009/04/interesting-in-learning-about-san.html</a>
April 9, 2009	Come learn about San Diego's Sea Turtles! End of May!	<a href="http://sandiegoseaturtles.blogspot.com/2009/04/come-learn-about-san-diegos-sea-turtles.html">http://sandiegoseaturtles.blogspot.com/2009/04/come-learn-about-san-diegos-sea-turtles.html</a>
April 14, 2009	What does the South Bay Power Plant have to do with Sea Turtles?	<a href="http://sandiegoseaturtles.blogspot.com/2009/04/what-does-south-bay-power-plant-have-to.html">http://sandiegoseaturtles.blogspot.com/2009/04/what-does-south-bay-power-plant-have-to.html</a>
April 20, 2009	Since the sea turtles in the San Diego Bay don't come out of the water, how do scientists study them?	<a href="http://sandiegoseaturtles.blogspot.com/2009/04/since-sea-turtles-in-san-deigo-bay-dont.html">http://sandiegoseaturtles.blogspot.com/2009/04/since-sea-turtles-in-san-deigo-bay-dont.html</a>
April 24, 2009	Sea Turtles + Eelgrass = Healthy Environment	<a href="http://sandiegoseaturtles.blogspot.com/2009/04/sea-turtles-eelgrass-healthy.html">http://sandiegoseaturtles.blogspot.com/2009/04/sea-turtles-eelgrass-healthy.html</a>
May 4, 2009	Come learn about San Diego's Sea Turtles! May 28th, 6pm	<a href="http://sandiegoseaturtles.blogspot.com/2009/05/come-learn-about-san-diegos-sea-turtles.html">http://sandiegoseaturtles.blogspot.com/2009/05/come-learn-about-san-diegos-sea-turtles.html</a>
May 7, 2009	Birch Aquarium Staff Gets to Learn More About San Diego Sea Turtles	<a href="http://sandiegoseaturtles.blogspot.com/2009/05/birch-aquarium-staff-gets-to-learn-more.html">http://sandiegoseaturtles.blogspot.com/2009/05/birch-aquarium-staff-gets-to-learn-more.html</a>
May 13, 2009	Part 1: Status of Green Sea Turtles in the Eastern Pacific	<a href="http://sandiegoseaturtles.blogspot.com/2009/05/part-1-status-of-green-sea-turtles.html">http://sandiegoseaturtles.blogspot.com/2009/05/part-1-status-of-green-sea-turtles.html</a>
May 16, 2009	Part 2: Green Sea Turtles in San Diego Bay	<a href="http://sandiegoseaturtles.blogspot.com/2009/05/part-2-green-sea-turtles-in-san-diego.html">http://sandiegoseaturtles.blogspot.com/2009/05/part-2-green-sea-turtles-in-san-diego.html</a>
May 20, 2009	Part 3: Turtle "Catchability" Appears to be Declining - What Does This Mean?	<a href="http://sandiegoseaturtles.blogspot.com/2009/05/turtle-catchability-appears-to-be.html">http://sandiegoseaturtles.blogspot.com/2009/05/turtle-catchability-appears-to-be.html</a>
May 27, 2009	Learn all about San Diego's Sea Turtles: This Thursday, May 28th, 6pm	<a href="http://sandiegoseaturtles.blogspot.com/2009/05/learn-all-about-san-diegos-sea-turtles.html">http://sandiegoseaturtles.blogspot.com/2009/05/learn-all-about-san-diegos-sea-turtles.html</a>

Comments received:

2 COMMENTS:


 **CJ said...**  
Hi - I read your blog and love it. Any chance we could tie it into the Port's community site? I think we could just pull your RSS feed ...  
  
community.portofsandiego.org  
**April 20, 2009 2:18 PM**  


 **CTurnerT said...**  
Hi CJ - Thanks - I'm glad you've enjoyed the site so far! PublicReMix looks great too. I'd be very interested in linking up to the Port's site. The RSS feed would be great - my Twitter posts often link back to here as well.  
**April 20, 2009 3:52 PM**  




[POST A COMMENT](#)

**Blog Archive**  
▼ **2009** (12)  
▼ **May** (6)  
[Learn all about San Diego's Sea Turtles: This Thursday Part 3: Turtle "Catchability" Appears to be Declining](#)  
[Part 2: Green Sea Turtles in San Diego Bay](#)  
[Part 1: Status of Green Sea Turtles in the Eastern San Diego Bay](#)  
[Birch Aquarium Staff Gets to Learn More About San Diego's Sea Turtles! May 28th](#)  
► **April** (6)






Come join me at a local talk, or email/post comments to learn more!  
*Posted by Cali Turner Tomaszewicz at 1:54 PM*  


1 COMMENTS:

 **Anonymous said...**  
super cool blog please write more. never would have believed it till i saw it for myself. The are really loud when they come up for air and huge , almost as big as my dingy. I'm in the south bay almost every weekend now i watch for em all the time! have you ever dove with them in the bay? its a bit murky.  
**May 20, 2009 12:20 AM**  


[POST A COMMENT](#)



**Green Sea Turtle Tracks**  
  
GPS tracks of a recently tagged sea turtle moving around the south end of the San Diego Bay. Source: NOAA SWFSC  


**San Diego Sea Turtle Research and Related Sites**

By email:

Hi, I recently ran across you at the Aquarium of the Pacific and have been enjoying your blog since then. I work in audio, and have been reading literature on "Soundscapes" and "Acoustic Ecology", and was wondering if this subject matter is being included in your research... Kris D.

Example of Posts


<http://sandiegoseaturtles.blogspot.com/2009/05/part-2-green-sea-turtles-in-san-diego.html>

## San Diego Sea Turtles


**Saturday, May 16, 2009**  
**Part 2: Green Sea Turtles in San Diego Bay**

The Eastern Green Sea Turtle, *Chelonia mydas*, is an endangered species, and while normally found in tropical regions such as Hawaii and Mexico, a population of resident green turtles is found year-round in the San Diego Bay. These animals usually spend most of their time in the southern section of the San Diego Bay, especially near the warm-water effluent (discharge) of the large South Bay Power Plant (see map).

A large earth structure separates where the power plant's intake pipes are from the discharge pipes. This land is now the Chula Vista



**Green Sea Turtle - NMFS Permit #1591**



Returning to the San Diego Bay after being tagged

**Blog Archive**

- ▼ 2009 (12)
- ▼ May (6)

[Learn all about San Diego's Sea Turtles: This Thur... Part 3: Turtle "Catchability" Appears to be Declin... Part 2: Green Sea Turtles in San Diego Bay](#)

(Full page view)

<http://sandiegoseaturtles.blogspot.com/2009/04/what-does-south-bay-power-plant-have-to.html>

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## San Diego Sea Turtles

**Tuesday, April 14, 2009**  
**What does the South Bay Power Plant have to do with Sea Turtles?**



Photo: NMFS Permit # 1591

Eastern Pacific Green Sea Turtles live in warm water areas of the Pacific Ocean

Including the San Diego Bay, Eelgrass, a favorite food of green sea turtles, grows in the bay and is also a sign of a healthy and diverse ecosystem that can support young fish, crabs, lobster and more! You can even rent kayaks and paddle around the south end of the bay and see a sea turtle popping up its head to breathe! The power plant at the end of the bay discharges warm water that the turtles like to visit – they are often seen resting at the "jacuzzi!"

The South Bay Power Plant, scheduled to be taken off-line in the next few years, will then no longer discharge warm water into the Bay.

**Green Sea Turtle**



Resident green sea turtle at the Chula Vista Nature Center

**Green Sea Turtle Tracks**



(Full webpage view)

<http://sandiegoseaturtles.blogspot.com/2009/04/did-you-know-that-there-are-sea-turtles.html>

SEARCH BLOG | FLAG BLOG | FOLLOW BLOG | Next Blog- | Cali.Turner@gmail.com | New Post | Customize | Sign Out

## San Diego Sea Turtles

**Monday, April 6, 2009**

### Interested in learning about San Diego's Sea Turtles?

As part of my Capstone project for my Masters', I will be making multiple presentations and informal talks to help increase the awareness about the research going on to learn about these great creatures in San Diego, and how these turtles can actually help our local community, while we can also help protect these endangered animals and many, many more animals and resources that live in our coastal and open ocean habitats.

I will be announcing the dates, times and locations of these talks very soon. Check back to the blog to learn more, or follow SDSeaTurtles on Twitter to get updates on San Diego's Sea Turtles and up coming talks.

Questions and Comments? Post below, or send an email to me at: [SDSeaTurtles@gmail.com](mailto:SDSeaTurtles@gmail.com)

Posted by Cali Turner Tomaszewicz at **1:15 PM**

0 COMMENTS:

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### Green Sea Turtle - NMFS Permit #1591



Returning to the San Diego Bay after being tagged

### Green Sea Turtle Tracks

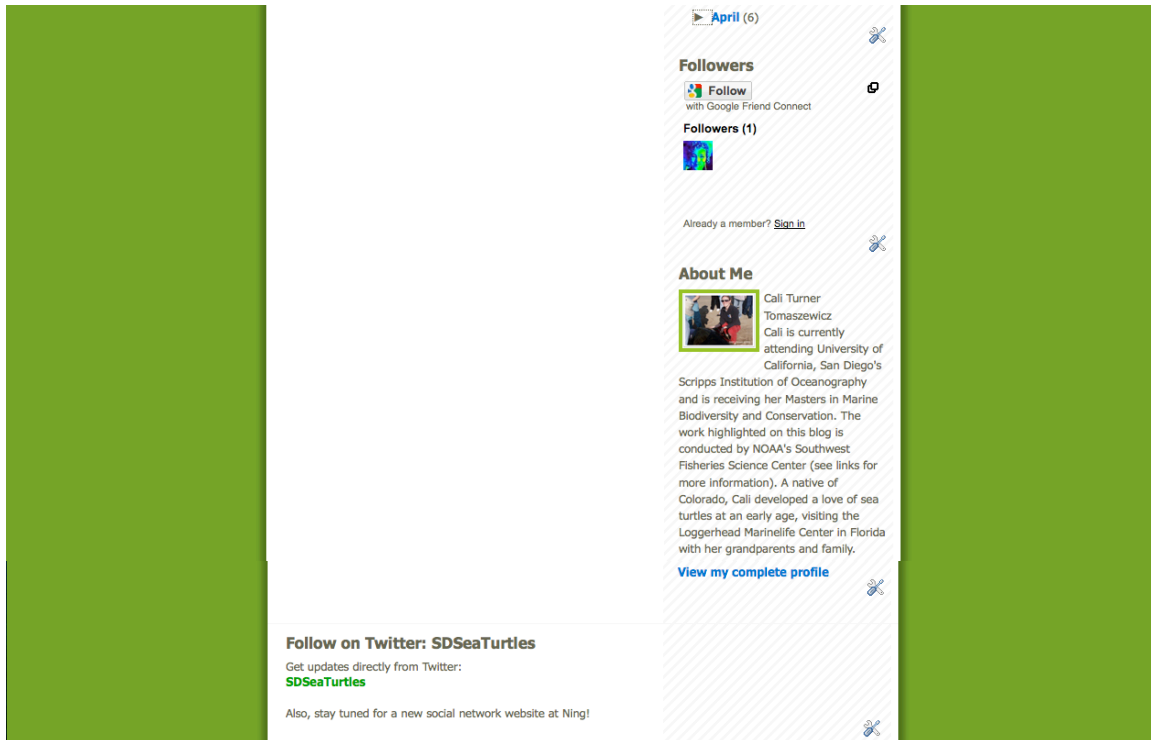


GPS tracks of a recently tagged sea turtle moving around the south end of the San Diego Bay. Source: NOAA SWFSC

### San Diego Sea Turtle Research and Related Sites

- ◆ [Unified Port of San Diego - Turtle Tracks, The Adventures of "WrinkleButt"](#)
- ◆ [Unified Port of San Diego - Environment - Green Sea Turtles](#)
- ◆ [NOAA Southwest Fisheries Science Center - San Diego Marine Turtles](#)

[Blog Archive](#)



## Full Articles/Posts

**5/27/2009**

Learn all about San Diego's Sea Turtles: This Thursday, May 28th, 6pm

[Photo]

Tomorrow evening, Thursday, May 28th, at 6:00pm, I will speak at Pro Peninsula's downtown location about San Diego's own sea turtles, their situation in the San Diego Bay, and what it means for the people of San Diego.

Once the South Bay Power Plant is removed, which it will be in the next few years, the south part of the San Diego Bay's ecosystem will change. How will this affect the endangered green sea turtles that are attracted to the warm, tropical-like water that is discharged by the power plant? Join me tomorrow to learn more! (Hint: we will still have sea turtles in the bay once the power plant is gone...)

And once the plant has been removed, the City of Chula Vista and all the residents of San Diego County will have a wonderful opportunity to develop this bayfront land as they see fit. A large range of development options are possible, and sustainable and thoughtful planning CAN make the South Bay setting one that hosts a healthy and diverse ecosystem and wildlife, and at the same time stimulates the local economy and benefits the community.

One great opportunity is increased education for our local youth. Pro Peninsula's education program, Ocean Connectors, is one great example. Frances Kinney, Education Coordinator, will share more about Ocean Connectors and the sea turtles of San Diego Bay.

Join us tomorrow, to learn more about these great ocean creatures, and how you can be involved in protecting these animals and deciding the future of the south bay.

To learn more, visit Pro Peninsula or UCSD's Scripps Institution of Oceanography's Center for Marine Biodiversity and Conservation (see Announcements), hope to see you there!

Labels: Pro Peninsula, san diego bay, sea turtles, sustainable development  
5/27/09 by Cali Turner Tomaszewicz

### **5/20/2009**

Part 3: Turtle "Catchability" Appears to be Declining - What Does This Mean?

[Photo]Photo: NOAA SWFSC scientists search for sea turtles in San Diego Bay

First studied in the 1970's, the population of resident San Diego sea turtles has been closely monitored by scientists. Today, researchers from NOAA's Southwest Fisheries Science Center (SWFSC) and other local universities are supported, largely by the Unified Port of San Diego, and monitor the health, behavior, and well-being of this group of endangered green sea turtles.

In looking at the total number of turtles caught by researchers each year (refer to April 20th blog on how NOAA researchers "catch" the turtles), we noticed that in the past few years, the turtles seemed to be getting harder to catch. Meaning, it took a longer time in recent years, to catch the same number of turtles when compared to previous years.

For example, during the 2002-2003 monitoring season, which usually runs from late October to early May, SWFSC researchers would expect to catch around 4 turtles every day they went out to monitor the turtles. This is often referred to as the Catch-Per-Unit-Effort, or CPUE, and is a common way that fisheries are managed and assessed. So, for the 2002-2003, the CPUE was just over 4 turtles per day.

When you compare that to this year's CPUE, you notice that it was much harder to catch 4 turtles. In fact, the 2008-2009 CPUE was just over 1 turtle per day! I will discuss more about the over all "catchability trend" in a future post, but for now, I will wrap up with the three possible reasons why the "catchability" of the sea turtles in the San Diego Bay is declining.

- 1- the population of sea turtles is getting smaller
- 2- the turtles are learning how to avoid the nets that scientists use to catch the turtles



3- the turtles are more spread out in the bay than they used to be.

It turns out that neither #1 or #2 are correct, but that #3 could be part of the explanation.

Stay tuned to the nest post to learn more about these three reasons!

Labels: CPUE, san diego bay, sea turtles

5/20/09

by Cali Turner Tomaszewicz

## **5/16/2009**

### Part 2: Green Sea Turtles in San Diego Bay

[Photo]

The Eastern Green Sea Turtle, *Chelonia mydas*, is an endangered species, and while normally found in tropical regions such as Hawaii and Mexico, a population of resident green turtles is found year-round in the San Diego Bay. These animals usually spend most of their time in the southern section of the San Diego Bay, especially near the warm-water effluent (discharge) of the large South Bay Power Plant (see map).

A large earth structure separates where the power plant's intake pipes are from the discharge pipes. This land is now the Chula Vista Wildlife Reserve, and is the primary reason why there have NEVER been any green sea turtles caught in or on the power plant's intake pipes. The turtles are frequently seen on the south side of the land structure, where the warm discharge water creates a warmer-than-normal habitat (see the red area on map). The South San Diego Bay National Wildlife Refuge includes the salt evaporation ponds at the far south end of the bay, and provides additional protection to the sea turtles by requiring slower boat speeds for example.

First studied in detail by graduate student Margie Stinson in the 1980s, the population of San Diego Bay turtles continues to be monitored (Stinson, 1984). Constant observations by NOAA's NMFS Southwest Fisheries Science Center and other researchers have added to the body of knowledge on this particular population (Dutton, 1990) (NOAA, NMFS SWFSC, 2008).

The image above was created in Google Earth. The yellow, orange and green coloration show different habitats in the South Bay and was created by the Unified Port of San Diego. Other images added by me include the red coloration depicts, the estimated warm-water plume generated by the power plant, estimated to extend about 5000 ft, to the end of the barge extending from the most western end of the Chula Vista Wildlife Reserve, and the turtle icon show some of the areas that turtles frequently visit.

Explore more of the San Diego Bay with the Unified Port of San Diego's new Google Earth tour of the Bay's natural resources

Sources:

Dutton, P. (1990). Sea turtles present in San Diego Bay. In T. J. Richardson (Ed.), Proceedings of the Tenth Annual Workshop on Sea Turtle Biology and Conservation (pp. 139-141). Washington DC: NOAA Technical Memorandum NMFS-SEFC-278.

NOAA, NMFS SWFSC. (2008, May 7). Marine Turtle Program. Retrieved December 1, 2008, from NOAA, NMFS Southwest Fisheries Science Center:  
<http://swfsc.noaa.gov/prd-turtles.aspx>

Stinson, M. (1984). Biology of sea turtles in San Diego Bay, California, and in the north eastern Pacific Ocean. San Diego State University. San Diego: Master's Thesis.

More information: State of the Bay Report.

5/16/09 by Cali Turner Tomaszewicz

**5/13/2009**

Part 1: Status of Green Sea Turtles in the Eastern Pacific

[Photo]

Of the six (or seven, depending on who you ask!) species of sea turtles alive today, the green sea turtle, known as *Chelonia mydas*, is the species found in the San Diego Bay. The population of green turtles found in these waters of the Eastern Pacific Ocean, are Endangered and therefore monitored and protected according to federal law. The group of green sea turtles found in this region of the ocean (from California through Mexico and even South America) have been impacted by harvest (of both turtles and eggs) fishery bycatch, entanglement and ingestion of debris, and even boat collisions. Over the last 30-40 years, this population of green sea turtles has significantly declined.

Common among all sea turtles species, the eastern pacific green sea turtles nest in one location, but eat, or forage, the rest of the year in another location. San Diego bay provides food for the sea turtles who migrate to the central coast of Mexico to nest. Slow growing and long lived, green sea turtles may live to be over 70 years old, and do not reproduce until they are 25-30 years old. Even then, females breed only once every two to three years.

All habitats utilized by the green sea turtles are important, but those habitat known to support either feeding or breeding are of particular significance to the protection and recovery of these endangered animals.

Next, Part 2: Green Sea Turtles in the San Diego Bay

Source:

National Marine Fisheries Service and U.S. Fish and Wildlife Service. 1998. Recovery Plan for U.S. Pacific Populations of the East Pacific Green Turtle (*Chelonia mydas*). National Marine Fisheries Service, Silver Spring, MD.

Labels: san diego bay, sea turtles, status

5/13/09 by Cali Turner Tomaszewicz

**5/07/2009**

Birch Aquarium Staff Gets to Learn More About San Diego Sea Turtles

[Photo]

On May 6th, I was fortunate enough to chat with some of the staff and volunteers from the Birch Aquarium's education program and share with them what type of research I have been doing with the sea turtles in the San Diego Bay - and about the social, political, and even economic impacts of the research.

Given my background in marine education, it was a great chance to come full-circle and make that connection between why research is conducted, and what it means at the social and political levels - not just at the scientific level.

It was a great way for research and its social implications to be shared and discussed with a group of people who regularly interface with the public and share the wonders of our oceans with kids and adults everyday.

After 30 minutes of hearing about the following aspects from me:

What turtles we have in California waters,

How these endangered animals are regulated and protected,

What NOAA scientists do when monitoring the turtles in the San Diego Bay,

What potential changes are expected once the power plant in the south end of the bay shuts down and stops discharging warm water which, especially during the winter months, creates a warm water refuge for the Eastern Pacific Green Sea Turtles,

How the entire situation presents a potentially wonderful opportunity for citizens in San Diego - considering the expected changes that will occur in the South Bay once the large power plant is removed in the next few years, and

That future development CAN embrace the endangered sea turtles, and the entire ecosystem of the South Bay, as a BENEFIT, it does not have to be a burden planning around a protected species.

There were wonderful questions and discussions about:

General sea turtle biology and behaviors  
How many sea turtles are in the San Diego Bay? (Answer: around 60)

Specifics on what shifts may be expected from the sea turtles once the power plant closes  
Education and volunteer opportunities for SD students, residents and visitors  
and much more!

The big question: will the sea turtles stay in San Diego?

Answer: The good news on all of the initial research is that we expect the turtles to still visit us in San Diego even once the warm water from the power plant is gone. The south end of the San Diego Bay will continue to provide a safe and warm place for the sea turtles to visit and the eelgrass which they enjoy eating will still be available - even if it means they just change the time of the year they are around, and where they spend most of their time.

Many thanks again for the chance to talk with the staff of this wonderful organization! And to those who would like to join me for my next talk - see below for details on the May 28th talk at Pro Peninsula!

Labels: Birch Aquarium, education, sea turtles

5/7/09 by Cali Turner Tomaszewicz

### **5/04/2009**

Come learn about San Diego's Sea Turtles! May 28th, 6pm

Come join me, and Educator Coordinator Frances Kinney of Pro Peninsula's Ocean Connectors program, on Thursday evening, May 28th, to learn more about the endangered Eastern Pacific Green Sea Turtles!

Located at Pro Peninsula in downtown San Diego, we'll share the research being done to monitor these charismatic turtles, and how these findings help to inform policy decisions - especially in regards to the South Bay Power Plant and future development of the Chula Vista bayfront - and how the turtles and the research also serve as a tool to engage the local students!

Marine turtles, like these in San Diego Bay, provide an opportunity to increase the social benefits of local natural ecosystems and resources - come join us on May 28th to find out more!

Visit [www.propeninsula.org](http://www.propeninsula.org) for more details!

Video: Taken by author in the Caribbean. The behavior of this green sea turtle surfacing to breathe and then returning to the ocean floor to rest is very similar to the behavior we expect from the green sea turtles in San Diego Bay. Much of the day they are eating, resting, and breathing at the surface as needed.

5/4/09 by Cali Turner Tomaszewicz

### **4/24/2009**

Sea Turtles + Eelgrass = Healthy Environment

[Photo]Photo: Sea turtle foraging (eating) in the Caribbean.

Sea turtles in the San Diego Bay seem to mostly feed on eelgrass which is found in throughout shallower parts of the bay. In the southern part of the bay, south of Sweetwater Marsh, where the turtles spend most of their time, the eelgrass seems to grow in shallow areas ranging from a depth of 0-7 feet. Called "eelgrass beds", these sea turtle feeding areas are very important habitats for other animals living in and around the bay.

Young fish, crabs, lobsters and more use the eelgrass beds to grow before moving on to other habitats like the open ocean. When sea turtles eat the eelgrass, they act like "lawnmowers" and keep the beds healthy and growing. By maintaining these important habitats, fish and other animals in the water can use the eelgrass as protection from predators, a food source, and a nursery. Fish found in the south bay include California halibut, Spotted & Barred Sand Bass, Striped Mullet and Kelpfish - among many others.

Eelgrass also helps keep the water clear! Because eelgrass can grow to be a few feet in length, it can slow down movements in the water that might otherwise stir up the fine sand on the bottom that makes the water murky. And because it has roots - just like normal grass - it helps trap and hold down the sand and other fine sediments.

Finally, if the water is too polluted, the eelgrass cannot grow. During the 1940s-1960s, eelgrass beds shrank and pretty much disappeared as a result of marine pollution. But when changes began to occur to improve the quality of the bay's water (like eliminating sewage deposition in 1963) the eelgrass began to grow again.

So, when we have sea turtles in the bay, we know we have eelgrass in the bay, and that the ecosystem is doing alright!

Happy Earth Day, everyone!

Key Reference: The San Diego Bay Integrated Natural Resources Management Plan (INRMP)

Labels: eelgrass, fish, sea turtles

4/24/09

by Cali Turner Tomaszewicz

**4/20/2009**

Since the sea turtles in the San Diego Bay don't come out of the water, how do scientists study them?

[Photo]

Sea turtles, as their name implies, are marine animals and spend almost ALL of their time in the ocean. The exception is when females nest on beaches, or when individuals bask, or rest, on the sand to warm up - this is common in places like Hawai'i, especially where there are not too many disturbances, like people or pets.

But in San Diego, the turtles stay in the water all the time, they only eat here, they don't nest or breed here. So this can make it difficult for scientists to study this groups of sea turtles.

What researchers do instead, is use large nets, designed specifically to capture but not harm the sea turtles. And because green sea turtles are endangered and are protected by the Endangered Species Act, researchers have permits and use special techniques when working with the turtles. Always on the water and watching the nets, researchers bring the caught turtles into the small research boat, and then bring the sea turtles onto shore. A typical "exam" done by the scientists includes weighing and measuring the turtle, taking samples for DNA and contaminant testing, and tagging the turtle so its movement can be monitored.

More information coming soon on the different ways San Diego's sea turtles are tagged and tracked.

When all the information about the turtles has been recorded, the nets are removed from the water, and the turtles are released back into the bay where they were found.

This type of information is especially important in light of near-future bayfront development that will be taking place along the south bay once the power plant is shut down. More coming soon on how this research impacts San Diego residents too!

For more pictures, on how the turtles are caught, weighed and measured, visit NOAA's website:

<http://swfsc.noaa.gov/textblock.aspx?Division=PRD&ParentMenuId=212&id=4378>

Labels: research, san diego bay, sea turtles

4/20/09 by Cali Turner Tomaszewicz

#### **4/14/2009**

What does the South Bay Power Plant have to do with Sea Turtles?

[Photo]Photo: NMFS Permit # 1591

Eastern Pacific Green Sea Turtles live in warm water areas of the Pacific Ocean including the San Diego Bay. Eelgrass, a favorite food of green sea turtles, grows in the bay and is also a sign of a healthy and diverse ecosystem that can support young fish, crabs, lobster and more! You can even rent kayaks and paddle around the south end of the bay and see a sea turtle popping up its head to breathe! The power plant at the end of the bay discharges warm water that the turtles like to visit – they are often seen resting at the “jacuzzi”!

The South Bay Power Plant, scheduled to be taken off-line in the next few years, will then no longer discharge warm water into the Bay. Sea turtles are endangered

animals, protected by the Endangered Species Act, and to understand the impacts of these policy changes, scientists study San Diego's sea turtles and the Bay's environment.

Population remaining stable  
Location of sea turtles different  
Movement patterns changing  
Behaviors are slightly different  
Sea turtles are not harmed

Come join me at a local talk, or email/post comments to learn more!

1 comment 4/14/09 by Cali Turner Tomaszewicz

#### **4/09/2009**

Come learn about San Diego's Sea Turtles! End of May!

I will be giving multiple presentations around San Diego, to tell the neat story about these ancient reptiles that live in our backyard!

The final talk I will be giving will be held at the end of May, together with Pro Peninsula. Stay tuned for more details.

If you are from a school, nature or environmental group and would like to arrange a presentation at your facility for April-May - please contact me, as this will be for offered during April and May only.

Learn more about Pro Peninsula too at: <http://www.propeninsula.org/>  
4/9/09 by Cali Turner Tomaszewicz

#### **4/06/2009**

Interested in learning about San Diego's Sea Turtles?

As part of my Capstone project for my Masters', I will be making multiple presentations and informal talks to help increase the awareness about the research going on to learn about these great creatures in San Diego, and how these turtles can actually help our local community, while we can also help protect these endangered animals and many, many more animals and resources that live in our coastal and open ocean habitats.

I will be announcing the dates, times and locations of these talks very soon. Check back to the blog to learn more, or follow SDSeaTurtles on Twitter to get updates on San Diego's Sea Turtles and up coming talks.

Questions and Comments? Post below, or send an email to me at:  
SDSeaTurtles@gmail.com

4/6/09 by Cali Turner Tomaszewicz

**4/06/2009**

Did you know that there are sea turtles in San Diego?!

Most people, even life-long San Diegans, are unaware of these amazing creatures living right in our back yard!

This population of Eastern Pacific Green Sea Turtles have been studied by scientists since 1990.

Stay tuned to learn more about the research taking place to learn more about these incredible marine animals, and how their well-being can actually provide many benefits to those of us land-dwellers living and vacationing in San Diego.

2 comments 4/6/09 by Cali Turner Tomaszewicz



# Communication of Social Significance of Research and Value of Natural Resources Using New Media Resources: Twitter

By Cali Turner Tomaszewicz

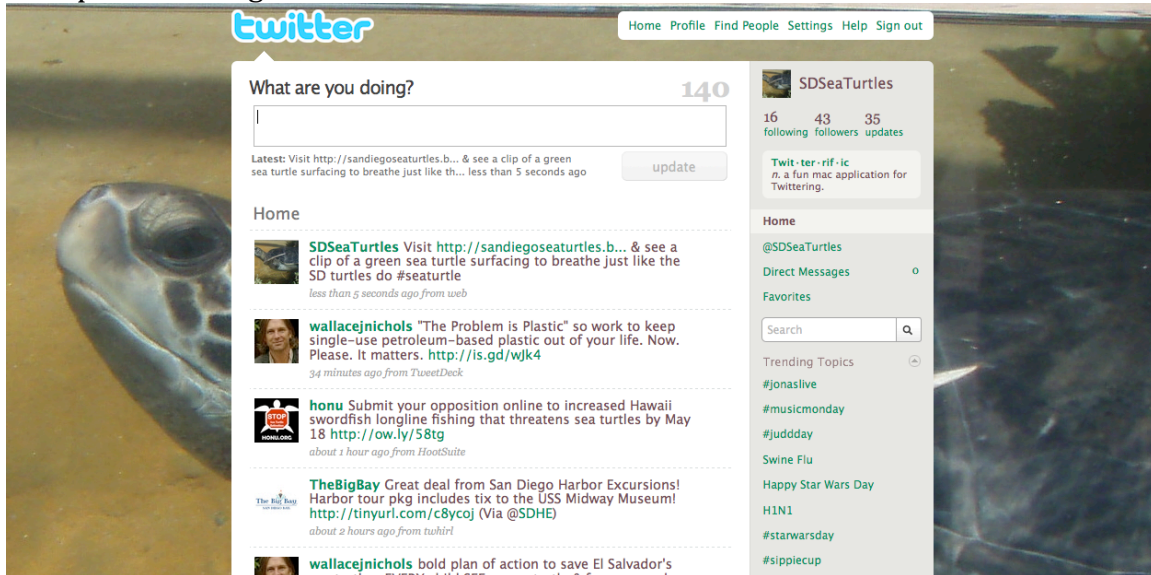
What is Twitter?

From: <http://twitter.com> "Twitter is a service for friends, family, and co-workers to communicate and stay connected through the exchange of quick, frequent answers to one simple question: What are you doing?"

More at: <http://twitter.com/about#about>

Twitter Profile: "SDSeaTurtles" <http://twitter.com/SDSeaTurtles>

Example Home Page



SDSeaTurtles Main Page



## Posts to SDSeaTurtles

- \* Skip past navigation
- \* On a mobile phone? Check out [m.twitter.com](http://m.twitter.com)!
- \* Skip to navigation
- \* Skip to sign in form

## Loader

Twitter.com

- \* Login
- \* Join Twitter!



Hey there! SDSeaTurtles is using Twitter.

Twitter is a free service that lets you keep in touch with people through the exchange of quick, frequent answers to one simple question: What are you doing? Join today to start receiving SDSeaTurtles's updates.

- Name Cali Turner Tomasz
- Location San Diego
- Web <http://sandiegoseaturtles.blogspot.com/>
- Bio Goal: to increase awareness of the sea turtles in San Diego and how they can increase social benefit

## SDSeaTurtles

1. Today's the day! Join me & fellow Master's Candidates of UCSD's SIO's Center for Marine Biodiversity & Conservation: <http://bit.ly/16xPcC8>:27 AM Jun 2nd from web

2. Details for tomorrow's talk - San Diego Sea Turtles, and much more!  
<http://bit.ly/16xPcC9>:30 AM Jun 1st from web

3. Thanks to all who came out to Pro Peninsula last week to learn about San Diego's sea turtles! Next chance: tomorrow, 6/2 at SIO, UCSD, 10am8:39 AM Jun 1st from web

4. Join me TOMORROW, Thursday, May 28th, 6pm at Pro Peninsula to learn about San Diego's sea turtles! <http://www.propeninsula.org/> #seaturtles5:56 PM May 27th from web

5. When the power plant in SD Bay shuts down, the turtles will no longer be so concentrated in 1 location, they will spread out in the So. bay12:08 PM May 23rd from web

6. ...this seems to be linked to changing water temperatures as the large power plant changes how much it's operating & discharging warm water12:08 PM May 23rd from web
7. So where are the sea turtles in the SD Bay? They are still there! but they are simply not in the same place we always used to spot them...12:05 PM May 23rd from web
8. We can't seem to find the sea turtles in the San Diego Bay! Learn more! <http://sandiegoseaturtles.b...> #seaturtles #sandiego5:08 PM May 20th from web
9. Bycatch from various fisheries can have huge impacts on turtle populations. Choose sustainable seafood! Check out NEW: [www.InFishWeTrust.com](http://www.InFishWeTrust.com)2:31 PM May 20th from web
10. New! San Diego Sea Turtles Facebook group! Great place to learn more, share stories and ideas. Search: "San Diego Sea Turtles"10:10 AM May 18th from web
11. Google Earth image of the south San Diego Bay showing where the turtles hang out and other features <http://sandiegoseaturtles.b...>12:13 PM May 16th from web
12. TIL: Sushi fans can use MB Aq sushi guide & help prevent turtle bycatch <http://bit.ly/ebFCM>12:36 PM May 15th from web
13. Part 1: Status of Green Sea Turtles <http://sandiegoseaturtles.b...> Learn a bit more about the species found in the SD Bay3:35 PM May 13th from web
14. San Diego Sea Turtle blog: <http://sandiegoseaturtles.b...> #seaturtles10:12 AM May 11th from web
15. Starting tomorrow, the San Diego Sea Turtle blog will begin telling the story of these urban turtles and the impact of a closing power plant10:12 AM May 11th from web
16. Headed to the SD Bay today- this time to watch airplanes race & not search for turtles. Lots of great benefits provided to people by the Bay10:55 AM May 9th from web
17. More on the talk given at Birch Aquarium: <http://sandiegoseaturtles.b...>7:19 PM May 7th from web
18. Had a great chat with staff from the Birch Aquarium yesterday all about the turtles in the San Diego Bay! Next talk: 5/28 at Pro Peninsula!6:26 PM May 7th from web
19. Our "turtling" season in the SD Bay is official over. Only 14 turtles- lower than yrs w/ 25+. Prob related to differing temps- more soon!12:22 PM May 6th from web
20. Visit <http://sandiegoseaturtles.b...> & see a clip of a green sea turtle surfacing to breathe just like the SD turtles do #seaturtle5:31 PM May 4th from web
21. What does a power plant have to do with turtles? <http://tinyurl.com/dm6xa43>:26 PM May 2nd from web
22. Leatherback spotted off Point Loma, reported as "weak". Call NMFS SWFSC office if you see the turtle: <http://swfsc.noaa.gov/> #seaturtles9:52 AM May 1st from web
23. Come join me at Pro Peninsula on May 28th, 6pm to learn more about San Diego's cool sea turtles! <http://www.propeninsula.org/> #seaturtles8:25 AM May 1st from web

24. The Eastern Pacific Green Sea Turtles aren't the only endangered species in the San Diego Bay - Least Terns nest here & are also protected 8:29 PM Apr 30th from web
25. Check out the sea turtles on Google Earth! RT @portofsandiego Interactive Map Shows Marine Life in San Diego Bay <http://bit.ly/d9PRP> 10:01 AM Apr 30th from web
26. Entertaining & silly local SD weekly mag article mentions the enigmatic SD turtles <http://www.sandiegoreader.c...> 9:54 AM Apr 30th from web
27. These SD sea turtles know how to pick a good spot to hang out- the south end of the SD Bay is partially protected as a Nat'l Wildlife Refuge 11:04 PM Apr 29th from web
27. Green sea turtles often rest on the seabed floor for long periods of time, not surfacing to breathe for 2-3 hours! #seaturtles 8:22 AM Apr 28th from web
28. Today's research I'm doing: Is the changing water temp, because of the power plant running less, affecting the turtles in the San Diego Bay? 10:52 AM Apr 27th from web
29. Thanks to all the folks who stopped by to learn about the San Diego sea turtles yesterday at the Aquarium of the Pacific in Long Beach! 9:17 AM Apr 27th from web
30. In the Los Angeles area tomorrow, 4/26? Come on by the Aquarium of the Pacific's Earth Day! I'll be there to answer ?'s about the turtles! 5:10 PM Apr 25th from web
31. @sandiegocoast Thanks! Studying and spreading the word about these great SD animals is great fun - the more that know the better! 8:55 AM Apr 24th from web in reply to sandiegocoast
32. The green sea turtles in SD Bay eat eelgrass & help maintain a healthy habitat for other animals: <http://sandiegoseaturtles.b...> 8:51 AM Apr 24th from web
33. Just got back from searching for turtles in the SD Bay - as of 12:30, none were spotted, but the water sure is warm. More info coming soon! 1:13 PM Apr 23rd from web
34. @OceanDoctor Thanks for sharing the link on San Diego's sea turtles! 9:28 AM Apr 21st from web in reply to OceanDoctor
35. Ever wonder how scientists study sea turtles when they're always in the water and never on shore? <http://sandiegoseaturtles.b...> 3:48 PM Apr 20th from web
36. In San Diego & want to learn more about our sea turtles? Pro Peninsula will be hosting a talk I'll give on May 28th - details coming soon! 11:26 AM Apr 20th from web
37. In So Cal? Come to the Earth Day at Aquarium of the Pacific in Long Beach on Sunday 4/26 - stop by, say Hi!, and learn about these turtles! 11:25 AM Apr 20th from web
38. Green sea turtles enjoy warmer water ~65+ degrees F. The S. Bay power plant discharge makes the water warmer than it would be naturally... 5:27 PM Apr 17th from web
39. The San Diego sea turtles usually eat during the evening & nighttime, and then return to the warm water near the power plant in the morning 9:22 PM Apr 16th from web

40. What do sea turtles have to do with the South Bay Power Plant?  
<http://sandiegoseaturtles.b...> #seaturtles2:00 PM Apr 14th from web
41. Follow other sea turtles as they migrate - even participate and guess who will win at the Great Turtle Race! <http://www.greatturtlerace...>9:47 AM Apr 13th from web
42. Sea turtles migrate great distances between where they feed & where they breed. San Diego's turtles nest along the central coast of Mexico9:46 AM Apr 13th from web
43. Local SD students get to visit the sea turtles through Pro Peninsula's Ocean Connectors: <http://www.propeninsula.org...>1:23 PM Apr 11th from web
44. More information on my project sharing information about San Diego's sea turtles at: <http://sandiegoseaturtles.b...>5:32 PM Apr 10th from web
45. Talks being given around San Diego to share more about the turtles in the Bay & why we're not seeing them in the same places. Details TBA5:30 PM Apr 10th from web
46. We were out at San Diego Bay again today hoping to find some of the sea turtles - but they were a no-show. 4th time this season...5:28 PM Apr 10th from web
47. The Green Sea Turtles found in the SD Bay have been visiting the bay for 1000s of years - they are not "escapees" of early SD settlers.1:28 PM Apr 9th from web
48. @TheBigBay WrinkleButt is a pretty neat turtle that hangs out in SD Bay! I'm yet to meet her but we've had a pretty good showing this year!12:08 AM Apr 9th from web in reply to TheBigBay
49. Check out some of the research being done by SDSU researchers and partnering groups: <http://www.bio.sdsu.edu/Pub...>12:02 AM Apr 9th from web
50. More details and photos from NOAA's research also at <http://tinyurl.com/cyojzv>1:20 PM Apr 8th from web
51. The largest turtle in the SD Bay population weighs over 550 lbs. Recognized by an up-turned shell, or carapace, her name is WrinkleButt!7:53 AM Apr 8th from web
52. The population of sea turtles in the San Diego Bay is estimated to be around 60-70. They feed, or forage, in the Bay, but nest in Mexico.1:10 PM Apr 7th from web
53. Starting my new campaign to increase awareness of the sea turtles in San Diego and how they can increase social benefit - stay tuned!9:54 AM Apr 6th from web

- \* Name Cali Turner Tomasz
- \* Location San Diego
- \* Web <http://sandiegoseaturtles.blogspot.com/>
- \* Bio Goal: to increase awareness of the sea turtles in San Diego and how they can increase social benefit

















18 Following 52 Followers (June 4<sup>th</sup>, 2009)

- \* 54Updates
- \* Favorites

# Followers – examples from April 6<sup>th</sup> – June 4<sup>th</sup>


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### Your 52 Followers


-  **Lagunacliffs / Laguna Cliffs Resort**  
follow block
-  **FSGriilsanDiego / FOX Sports Grill SD**  
follow block
-  **reefstudy / ReefStudy.com**  
follow block
-  **SEALIFEaquarium / SEA LIFE Aquarium**  
follow block
-  **OBMA / Joanna Schiele**  
follow block
-  **AquariumPacific / Aquarium of Pacific**  
✓ You are following AquariumPacific remove
-  **cj\_s / Catherine S**  
follow block
-  **pasopacifico / Paso Pacifico**  
follow block
-  **MichelleRealtor / Michelle Silverman**  
follow block
-  **INFISHWETRUST / IN FISH WE TRUST**  
✓ You are following INFISHWETRUST remove
-  **visitsandiego / San Diego**  
follow block
-  **OceanPro / Michael D. Baker**  
follow block
-  **hunkins / Muppet Babies**  
follow block
-  **turtlephotog**  
follow block
-  **suebio / Sue Bridi Nakashima**  
follow block
-  **KawarthaTurtle / Turtle Trauma Centre**  
follow block




Your 43 Followers

 **iamNuttZo** / Danielle LiVolsi  
 follow block


 **KingofHappyHour**  
 follow block


 **refugeehunt** / Refuge Hunt  
 follow block


 **changingoceans** / Changing Oceans  
 follow block

 **WineGirITweeter** / Whitney Farris  
 follow block

 **Tass73** / Danielle Tassie  
 follow block


 **staceyw55** / Stacey Winget  
 follow block


 **MercuryFacts** / Mercury Facts  
 follow block

 **wallacejnichols**  
 You are following wallacejnichols remove

 **familyevents\_LA** / LosAngeles Parent  
 follow block

 **toonkersemaker** / Toon Kersemakers  
 follow block


 **binarywolf** / BinaryWolf  
 follow block

 **sandiegocoast**  
 You are following sandiegocoast remove


 **oceanhealth** / Eli@OceanHealth.Org  
 follow block

 **Ruthie66** / Nina Reebea  
 follow block

 **sinfony** / Heather Abrahamson  
 follow block

 **AGreenThumb** / A Green Thumb  
 follow block

 **scubadivergirls** / scubadiver girls  
 You are following scubadivergirls remove

 **honu** / Eli @ Honu.Org  
 You are following honu remove

 **howr5** / Robert Howells  
 follow block

Next >

Your 44 Followers



**howlr5** / Robert Howells  
follow block



**2TurtleTrackers** / Steve and Julie  
✓ You are following 2TurtleTrackers remove



**iwearyourshirt**  
follow block



**greenturtlevr** / vanessa  
follow block



**Omie**  
follow block



**sandiegoparks** / SanDiego Parks  
follow block



**4THEDJ** / Matthew  
follow block



**Birch\_Aquarium** / Birch Aquarium  
✓ You are following Birch\_Aquarium remove



**eebock** / Emily  
follow block



**LilPrecious4u** / Danielle Dalpaz  
follow block



**NutritionExpert** / Mitzi Dulan  
follow block



**barzoent** / Barzo Enterprises  
follow block



**garyvee** / Gary Vaynerchuk  
follow block



**seaturtle** / Michael Coyne  
follow block



**somanyturtles** / TurtleDude-SMT  
follow block



**BeVital** / Mark Tomaszewicz  
follow block



**Calandra**  
follow block



**KatyHarrison20** / Katy Harrison  
follow block



**BalboaPark** / Balboa Park  
follow block



**HornblowerSD** / Hornblower Cruises  
follow block

« Previous Next »



Examples profiles of some followers:

**seaturtle**  
 Michael Coyne  
 Location Home  
 Web <http://www.seaturtle.org>  
 Bio Sea turtle geek and information junkie.

92 following 140 followers  
 Updates 1,614  
 Favorites

Actions  
 message seaturtle  
 nudge seaturtle  
 block seaturtle

Following  
 (Grid of profile pictures)

View All...  
 RSS feed of seaturtle's updates

---

**WOTD: Dermochelyid**  
<http://tinyurl.com/95pef4>  
*about 21 hours ago from seaturtle.org*

---

SUV drives over woman on beach (perhaps beach driving will be outlawed for public safety if not turtles)  
<http://news.seaturtle.org/5...>  
*11:54 AM May 3rd from seaturtle.org*

---

WOTD: Platform terminal transmitter <http://tinyurl.com/dm79v5>  
*9:00 PM May 2nd from seaturtle.org*

---

Endangered turtles eggs a good sign for Isle beaches (Galveston) <http://news.seaturtle.org/5...>  
*7:20 PM May 2nd from seaturtle.org*

---

Robbed of the Sea (the other side of conservation)  
<http://news.seaturtle.org/5...>  
*6:29 AM May 2nd from seaturtle.org*

**Birch\_Aquarium**  
 Birch Aquarium  
 Location 2300 Expedition Way, La Jolla  
 Web <http://aquarium.ucsd.edu>  
 Bio Birch Aquarium at Scripps is the public exploration center for the world-renowned Scripps Institution of Oceanography at UC San Diego.

614 following 910 followers  
 Updates 195  
 Favorites

Actions  
 message Birch\_Aquarium  
 block Birch\_Aquarium

Following  
 (Grid of profile pictures)

Tina Alvarez

---

San Diego's carbon footprint bigger than L.A. :( <http://bit.ly/C1bgj>  
*8:45 AM Apr 29th from TweetDeck*

---

FREE Film Screening May 7: "A Sea Change." Learn about the threats of ocean acidification. <http://bit.ly/dK6lq>  
*9:12 AM Apr 28th from TweetDeck*

---

Just read a Nat Geo article about the massive blue whale. Did u know u could swim in their arteries?! <http://bit.ly/YOZZj>  
*6:35 AM Apr 27th from TweetDeck*

---

@luannschindler What a bummer! Well, you know nature. Does it thing when it darn well wants to. :)  
*6:30 AM Apr 27th from TweetDeck in reply to luannschindler*

---

The grunions are running this weekend! Check out our

oceanrevolution.org

twitter

Home Profile Find People Settings Help Sign out

**wallacejnichols**

Following

**"The Problem is Plastic" so work to keep single-use petroleum-based plastic out of your life. Now. Please. It matters.**  
<http://is.gd/wjk4>  
*about 2 hours ago from TweetDeck*

---

**bold plan of action to save El Salvador's sea turtles: EVERY child SEES a sea turtle & former poachers become the guides--let's get started!**  
*about 3 hours ago from TweetDeck*

---

**great meeting w/ USAID folks in El Salvador...exciting plans for sea turtle program**  
*about 5 hours ago from TweetDeck*

---

**LIVBLUE: Get Outside Yourself: New Volunteer Match Program Connects Travelers with Sea Turtle Conservation**

Name wallacejnichols  
 Location The Californias  
 Web <http://www.wallac...>  
 Bio ocean scientist-activist-traveller-writer-dad

140 following 180 followers

Updates 161

Favorites

Actions  
[message wallacejnichols](#)  
[block wallacejnichols](#)

Following

View All...

RSS feed of wallacejnichols's updates

oceanrevolution.org

twitter

Home Profile Find People Settings Help Sign out

**familyevents\_LA**

Follow

**Michaels' countdown to Mothers' Day has begun, with free (gift-making) crafts every day through Sunday: <http://bitly.com/4P45a>**  
*about 20 hours ago from web*

---

**Of course the big Cinco de Mayo event is on Olvera Street - they actually mention the history! <http://bitly.com/ey3t8>**  
*9:26 PM May 2nd from web*

---

**Cinco de Mayo Festival (or tres de mayo?) for families at Virginia Park on Sunday: <http://bitly.com/7cd9L>**  
*9:22 PM May 2nd from web*

---

**The Americana celebrates its first anniversary with a family festival Sunday: <http://bitly.com/DkUuW>**  
*9:18 PM May 2nd from web*

---

**It's Free Comic Book Day! We've listed some local shops w/**

Name Los Angeles Parent  
 Location Los Angeles, CA  
 Web <http://gocitykids...>  
 Bio Local stuff for families is what we do

2,193 following 2,321 followers

Updates 131

Favorites

Actions  
[message familyevents\\_LA](#)  
[block familyevents\\_LA](#)

Following

View All...

RSS feed of familyevents\_LA's updates

twitter Home Profile Find People Settings Help Sign out

**Scuba Diver Girls**

Hi! Thanks for the follow. We are Scuba Diver Girls! We have a company in San Diego where we train and certify scuba divers and take people on snorkel and scuba tours. There are two of us... Stephanie and Margo.

- ScubaDiverGirls
- ScubaDiverGirls
- ScubaDiverGirls.com
- @ScubaDiverGirls
- ScubaDiverGirls

**scubadivergirls**

Following

**Happy #monkeymonday @KaylinQ and @ncpaddler**

about 10 hours ago from TweetDeck

---

RT @KaylinQ: RT @ncpaddler: #MonkeyMonday @KaylinQ @Scubadivergirls Wild monkeys eating shark eggs on low tide <http://bit.ly/Ddtwv>

about 22 hours ago from TweetDeck

---

YouTube - Scuba Diver Girls Boat Dive on the Lois Ann San Diego <http://ow.ly/4ZeJ>

about 23 hours ago from HootSuite

---

@aquagirl07 ok Amie...we should have another meetup soon!

about 23 hours ago from TweetDeck in reply to aquagirl07

---

@ecom131 @cbourbeillon @SINjewelry Hey all! thanks for the RTs!

from B&B Men and from TweetDeck in reply to ecom131

Name scubadiver girls  
Location San Diego  
Web <http://scubadiver...>  
Bio We are girls who love and live for scuba. We care about and contribute to programs that sustain the earth especially the ocean organizations.

2,841 following 2,922 followers

Updates 3+156

Favorites

Actions  
message scubadivergirls  
block scubadivergirls

Following

twitter Home Profile Find People Settings Help Sign out

**sandiegocoast**

Following

**@nowinsandiego Sure things. Looks like its clearing up somewhat. So much for rain.**

10:02 AM May 2nd from web in reply to nowinsandiego

---

RT @cottageantiques Top countries who use twitter: #1 Japan, Spain then UK. US isn't even in top 10. 60% of web traffic from outside US

9:26 AM May 2nd from web

---

RT @Go\_Encinitas Event #2 Sun Diego Surf Series#9 Pros & AMS (AA Rated) Oceanside 2 - 7 a.m. to 5 p.m

9:24 AM May 2nd from web

---

You can still catch festivities today at Mardi Paws Walk for Animals, at Crown Point Shores, Mission Bay.

<http://tinyurl.com/df82vl>

8:35 AM May 2nd from web

Name sandiegocoast  
Location Encinitas, San Diego, CA  
Web <http://www.sandie...>  
Bio Mark Goodkin, creator of SanDiegoCoastLife.com, an online guide on beaches, attractions & events on the SD coast.  
[www.cafepress.com/mysandi](http://www.cafepress.com/mysandi)

1,958 following 1,624 followers

Updates 428

Favorites

Actions  
message sandiegocoast  
block sandiegocoast

Following



# WineGirlTweeter

Follow

Special Price on Linne Calodo – use coupon code: twitter04 <http://tinyurl.com/cfnzsf>

about 4 hours ago from web

I heard 1989 Penfolds Grange was the wine of the event at Hospice du Rhone... Thoughts? I wish I had been there....

about 4 hours ago from web

New offer! <http://tinyurl.com/cfo3pw>

about 7 hours ago from web

Just tasted some incredible Italian and Spanish wines! Vall Lach 2005 – a knockout, Quorum 2003 was amazingly complex... Yum!

4:53 PM May 1st from web

Savoring a 1938 Massandra... It's never too early for something sweet!

Name Whitney Farris  
Location Napa, CA  
Web <http://www.benchm...>  
Bio Wine Lover, Wine Retailer, Graduate of Cal Poly, Dog Lover, and Traveler

2,001 following 526 followers

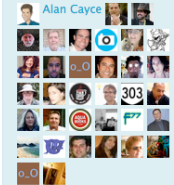
Updates 53

Favorites

Actions

message WineGirlTweeter  
block WineGirlTweeter

Following



View All...



# Ruthie66

Follow

@SDRadio Funny zombie pic, Chris!

about 12 hours ago from web in reply to SDRadio

Good Monday morning all! Please help me name my blog!

about 12 hours ago from web

Help me name my future BLOG! I want to post my art work, write about sobriety, radio, life, being happy, beating depression – my life stuff

4:58 PM May 3rd from web

@imgaffigan I LOVE YOU JGI! You made me laugh SO damn hard everytime I hear you!

4:45 PM Apr 28th from web in reply to imgaffigan

Damn ... another bus load of Clear Channel employess in San Diego got laid off today. Deep cuts AGAIN! grrrrrrr

4:39 PM Apr 28th from web

Name Nina Reeba  
Location San Diego, CA  
Bio Got laid off from Clear Channel, but go to work daily on The DSC on KGB-FM.

220 following 165 followers

Updates 52

Favorites

Actions

message Ruthie66  
block Ruthie66

Following



View All...

RSS feed of Ruthie66's updates