

WWW.SOCDC.COM



JANUARY 2007

## RAFFLE NEWS, MAP INFORMATION AND NEW DIVE PLANS.

**HAPPY NEW YEAR!** This is the South Orange County Dive Club's 19<sup>th</sup> year of diving and adventure. We are very proud of our energy and enthusiasm for diving. That explains our longevity. Let's face it, we love to dive and we love to dive with each other.

### PRESIDENT'S CORNER

BY  
*Konrad Fry*



The January meeting features Frank Nielsen from **Franko Maps**. These maps are a little unusual since they are a combination of cartoons and typical map views. Since I have an extraordinary history in the satellite/aerial imagery mapping business, I thought I would explore how Frank makes his maps and how U/W mapping evolved. Franko Maps are fun and easy to use and read. That is a bonus for SCUBA divers who need to see a dive site in context. I am dying to know how he got all the blurbs on each site. He must have gone to dive shops and boat operators and asked each to describe every dive site in one sentence.

So, let's look at the history of mapping coastlines and see where this all comes from. NOAA has an excellent website that describes the history of hydrographic surveys. Think about it. How did navigation charts get their depth data? How did people design accurate shorelines and features from

the deck of a ship? The most important thing about a map is its accuracy. Accuracy is a thing people's lives depend on! I will attempt to give you a history of mapping on land and water and how GPS coupled with ESRI software and USGS quarter quad sheets make Franko's Maps accurate and easy to use.

## THE HISTORY OF MAPPING.

OK, without getting boring, maps go back to the beginning of time. We all have seen the Ptolemy map of the World as rough and sketchy, but that map was used until the Middle Ages. It showed the first circular rendition of the world on a two-dimensional map projection. What most people never see is the detail maps of city planners that have been way ahead of the maps of the World. Why would ancient Mesopotamians and Egyptians have accurate local maps (**cadastral**) way back in 6000 BC? Why the answer is simple....TAXES. Throughout history, everyone who owns property got taxed. To collect that tax you have to measure property and the easiest way to do that is to make a map that says you own this land that is X feet wide and Y feet long and that square footage = total amount of taxes. It's all about the money ;-). So a **cadastral map** shows property outlines and distances all for the purpose of taxing you. The accuracy on these maps is currently as tight as 6 inches. When I worked at Eastman Kodak, we would have an X (length)/Y (width)/Z (height) accuracy of 12 inches total!

Maps of larger areas, counties, regions, states, and countries require more work and a perspective view. Since Aerial Balloons did not happen until Montgolfier brothers invented them in 1783 in Paris, the only way to map from a perspective was from a mountain or the mast of a ship. This presented several problems. The main problem was scale and accuracy. Here is where things got interesting. If you have been in the Vatican Map Hallway in Rome or, the Doge's Palace

Globe Room in Venice or even the Huntington Library near Pasadena, you will notice the terrible shape of the countries and coastlines on the 500-year-old maps. Mapmakers had not perfected 1. Map projections, 2. Measuring Systems and 3. Conflation. It is a rare treat to use a word like "conflation" so I will let you know what it means. But first, the history of Map projections:

In order to have a **map projection** you have to believe the World is round. Not easily done until 1492. Then you have to be able to take the round information and squeeze it flat for printing. Thanks to a guy named Gerardus Mercator (as in Mercator Projection) in 1569 a math wiz and graphics wiz the projection was born. Map Projections combine (conflate) measurement data with ground feature data (mountains, bays, rivers).



**Measuring Systems** started with a **level** and some chains. You took the **chains** and started from a known spot and determined the number of lengths to the start of the property. The level gave you a way to measure the angle of change from one corner to another to measure height (XYZ). Things got more exciting when the compass was invented in 800 AD in Amalfi, Italy (where the coast is) so you now could determine North accurately instead of using a sundial. Then things got real good when the **level was replaced with the Astrolabe** combined **LATITUDE** measurement with star location with angle measurement. Imagine how the **Sextant** improved this measurement by sight! Sir Isaac Newton invented it but never built it. An Englishman and America built one in 1730 and holy smokes distances were now ACCURATE measured from a ship or anything! During this time the telescope was modified to have two internal lenses to measure distance and angles. This was called a **Transit** and then a **Theodolite**. In 1769 John Harrison discovered that you could measure East/West distance with two accurate timepieces and invented the Chronometer (think Rolex) and discovered **LONGITUDE**. In the 1980's the most

significant measuring tool in history was set in motion, the **GPS satellite system**. That gave you X/Y/Z with just a hand held device. Now the whole shebang is done with an instrument called a **Total Station** that incorporates the Sighting of a Theodolite with GPS.

**Conflation** is a cool mapping term that is now being used in political discussion where someone is trying to make two separate things into one. The way you conflate in mapping is taking your measuring data and merging it with your graphic data to derive a unique map that is more accurate than the either of the original data sets. Here is the dangerous dance of graphic design with scientific data. When you do not know what the land actually looks like, and the distances are not too accurate, you get those goofy looking maps in the museums. With aerial data (balloons, aircraft and satellite) the width and length of physical features became REAL. Another item that is shoved into the maps these days is database information. Now with your ARCGis software from ESRI or AutoDesk, you can have insanely accurate image/distance/and attribute data for any possible map.

**Hello, are you still awake?** It took me six years in the satellite imagery business for EOSAT and Space Imaging to learn the above. Now let's see what Franko Maps does with his maps and find our why, with his cartoon image of the wreck of the Corsair on the Crystal Cove Underwater Park Map, Paul Miller, Steve Feldman and I almost anchored on top of it!



Franko Maps are derived from scanned USGS Digital Quarter Quadrangle Topographic Maps. **Quarter-Quad**: Refers to a map sheet size that is one-quarter of a 7.5-minute **USGS quadrangle**. DOQQ is a **digital** orthophoto quarter quad, a map product @ 1=1,000' used by the **USGS** and many statewide programs. The standard **quarter-quadrangle image covers** 3.75 minutes of **latitude** by 3.75 minute of **longitude**, at a scale of 1:12,000 cast on the **Universal Transverse Mercator projection** based on the **North American Datum** of 1983. **Huh? Whaaaa?** Stay calm, I am here to translate. If you go to Sport Chalet and get a hiking map of Big Bear or Yosemite with topo lines, you are getting a USGS quarter quad. The **ORTHO** part means some poor shlub had to look at two images of the same land taken from different angles and **CONFLATED** them with know feature points (triangulation) to get the topo heights / lines and convert them into elevations. These are accurate to several feet. The measurement of Earth is done in circular terms since it is a sphere, hence Degrees, Minutes, and Seconds. What Franko

Maps does next is paint the hills, valleys and water different colors according to elevations above and below sea level. Then he adds the street names, dive sites, and other icons with desktop publishing software like COREL DRAW and Adobe Illustrator. The reason the maps are accurate is because he uses the quarter quad sheets as a base and things are where they appear to be!

So how did people measure water depths? Hydrographic Maps started with Lead Lines and

intermittent depth readings. The problem was you would miss reefs and rocks that the lead line did not touch. NOAA solved this in early 1900 by dragging a weighted line stretched between two ships with bouys in the middle. Now you could determine U/W features like reefs and wrecks. Then WWII solved everything with the invention of radio signals that were bounced off the bottom and measured on their return. You have one of these if you have a FISH FINDER! Now with side scanning sonar and towed sonar arrays, vast areas of the ocean are accurately measured to

the inch level.

Now you are an unofficial Cartographer. Thank God you do not have to do the nitty gritty stuff! I will be very interested in how Frank gets his dive site attribute data (blurbs). This should be fascinating.

*-Konrad*

---

## SOCDC CALENDAR

**! IMPORTANT !** The **11 AM Saturday Dives will now be 10 AM**, please remain calm. This will give those who dive with South Coast Divers less time to wait for their next dive with the SOCDC and it gives the dive coordinator (me) more football playoff viewing. Woof.

PS. Are you rescue certified or above? We need another dive coordinator ☺ email: [kcfry1@yahoo.com](mailto:kcfry1@yahoo.com)

### SOCDC 10 AM Dives

Saturday, January 6<sup>th</sup> 2007 CANCELLED DUE TO HIGH SURF

Saturday, January 13<sup>th</sup> 2007 Seal Rock / Crescent Bay Laguna Beach

Saturday, January 19<sup>th</sup> 2007 Shaw's Cove, Laguna Beach

Saturday, January 27<sup>th</sup> 2007 Moss Point, Laguna Beach (unless I go to ZAP in SF)

January Girls Gone Diving TBD by next meeting.

January Raftup

January 27

Avalon Harbor Cleanup

<http://cleanup.ccd.org/>

Saturday, February 24<sup>th</sup> 2007

The SOCDC has reserved 5 condo/cabins in Avalon for the weekend. If you would like to put yet another one together Email Bill Thornton: [H2Othornton@yahoo.com](mailto:H2Othornton@yahoo.com)

The SOCDC will be diving CASINO LANDING since it is next to the U/W park ;-)



## DIVE BOAT UPDATE FOR 2007

*By Wendy Taylor*

Mark your calendars for this year club dive boats dates. We have the Sundiver April 15<sup>th</sup> (Sun), June 2 (Sat), Aug 18 (Sat), and Oct 21 (Sun). Since these boat trips are completely ours, we can plan the trips where we would like to go for the day. Price varies depending on the location. Please submit your requests for trip locations to me at [soccdiveboat@hotmail.com](mailto:soccdiveboat@hotmail.com). After reviewing our member's requests, I will publish our location for the April 15<sup>th</sup> trip on our club website and in the February newsletter.

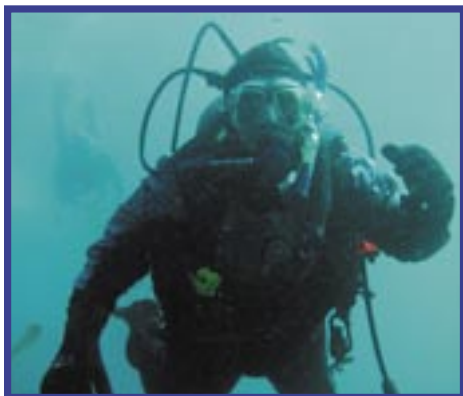
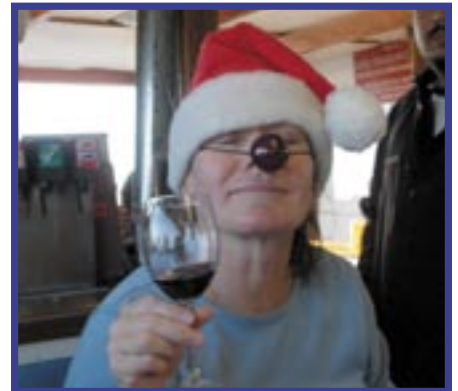
Next year we have the Peace on Dec 16<sup>th</sup> (Sun) to Anacapa. This is a shared trip with Reef Haven dive shop. It is their Christmas Party. We really enjoyed this last trip with them. They are a family oriented group with some younger divers. One of the young

divers has dreams of being an Oceanographer some day.

Our last trip on the Peace was a wild ride but a beautiful day on the backside of Santa Cruz Island. The crew on the Peace is the best. What a positive group with great warm food available in between every dive. The swim steps were always attended with crew members being very helpful with divers exiting the water. Here are some pictures from that trip.

I've also have had some requests that we dive wreck alley in San Diego. I will be investigating dates for this trip soon.

Happy and Safe Diving in 2007,





# CRITTER OF THE MONTH

## SPONGES (PHYLUM PORIFERA)

*By Bob Weinmann*

**Reprint from the National Audubon Society Field Guide to North American Seashore Creatures.**

Sponges are the simplest many-celled animals. Their shapes vary from tiny cups, broad branches, or tall vases to encrustations and large, rounded masses. Sponges come in a variety of colors. Grays and browns predominate in deeper waters; brighter hues in the shallows. With differing growing conditions a species may vary greatly in size, shape, and color, and so can be difficult to identify.

A sponge consists of a cooperating community of individual cells, each performing a specific function. The cells surround a system of canals through which water is pumped, providing the basis for all the sponge's life functions. Water enters the canals through minute pores (*ostia*) that dot the surface of the sponge. It then passes into chambers lined with collar cells, each with a sticky, funnel-shaped collar. Out of each collar extends a *flagellum*, a hair-like structure whose beating creates a current. The combined action of all the collar cells drives water through the canals and out of the sponge through a larger pore, the *osculum*. The collar cells trap food particles brought in with the water, and either digest them or pass them to other cells to be digested. This flow of water through the animal also brings in oxygen and removes carbon dioxide

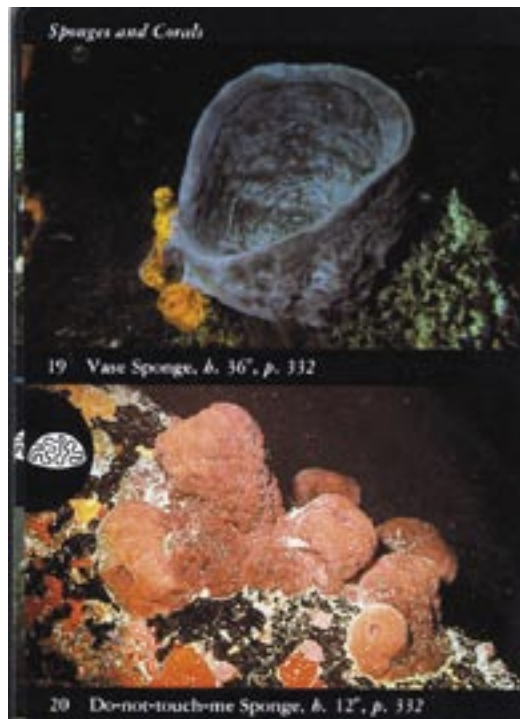
and other waste products. A simple sponge has one chamber and one osculum; more complex sponges have many of each.

Most sponges have a skeleton that is a meshwork of tough protein (*spongin*), or of microscopic hard splinters (*spicules*), or a combination of both. Spicules are either limy or glasslike and

appear in a variety of forms. Although too small to be helpful in field identification, spicules are examined in the laboratory to distinguish species that are superficially alike.

Sponges reproduce both asexually and sexually. Asexual reproduction occurs when a sponge constricts off a tip of one of its branches - a process called *budding* - or when parts are broken off by storms or by other animals. These fragments regenerate into complete sponges. Some sponges reproduce by means of *gemmules* - tiny clusters of cells, surrounded by a tough

coating, that are released when the sponge body is broken up, as by winter storms. When spring comes, the gemmules germinate and differentiate into tiny sponges. Most sponges also have both male and female reproductive structures. Clouds of sperm are released into the water and are swept into another sponge, where they fertilize the eggs. These then develop into swimming larvae that are washed out of the parent's chamber by the water current. If a larva settles on a suitable surface, it becomes



attached, changes its shape, and develops into a tiny sponge.

The Phylum Porifera is divided into three classes. The Calcispongiae, or Calcarea (with limy spicules), are represented here by four genera of small sponges: *Leucosolenia*, *Scypha*, *Leucandra*, and *Leucilla*. The Hyalospongiae, or Hexactinellida (glass sponges), are found only in deep waters. The Class Demospongiae comprises all the remaining sponges. Members of this class may have skeletons of glasslike spicules, or of spongin, or both, or may lack a skeleton entirely.

Vase Sponge  
(*Ircinia campana*)  
Class Demospongiae

Description: 24" (61 cm) wide, 36" (91 cm) high.  
*Vase-shaped or bell-shaped. With a deep central cavity.* Reddish to reddish-brown. Surface irregular, with small pores and coarse longitudinal ribs.

Habitat: Attached to rocks projecting a short distance above the bottom; from below low-tide line to water 50' (15 m) deep.

Range: Florida to Mexico; Bahamas; West Indies.

Comments: An accumulation of coral sediment is usually present in this sponge's central cavity, apparently with no ill effects. This species, often washed ashore during storms, becomes tough and shrunken when dried.

Do-not-touch-me Sponge  
(*Neofibularia nolitangere*)  
Class Demospongiae

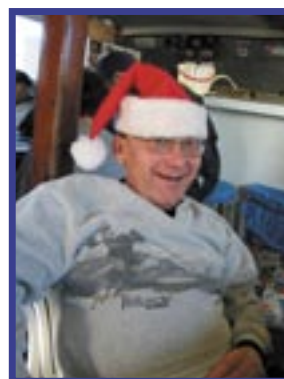
Description: 8" (20 cm) wide, 12" (30 cm) high.  
Massive. Brick-red to mahogany-brown. Dividing into *blun, thick lobes*, each with *large opening at top*.

Habitat: Often found at the base of Staghorn and Elkhorn corals and elsewhere around coral reefs; from shallow water to water 150' (46 m) deep.

Range: Florida to Mexico; Bahamas; West Indies.

Comments: **HIGHLY TOXIC.** This sponge causes severe blisters if handled. Since another stinging sponge, the Fire Sponge, is also red, it is prudent to avoid touching any red sponge in subtropical waters.

# HERE'S A FEW MORE PHOTOS FROM THE DIVE TRIP...



# QUARTERLY RAFFLE NEWS

*By Don Spencer*

Well, I hope everyone enjoyed the HOLIDAY PARTY last month and survived the NEW YEAR.

This month the SOCDC has it's Quarterly raffle in which your losing tickets have a chance to become a winner. That's right, the losers from November and then December all get thrown into the bucket along with January's losers and one is drawn for the Quarterly Prize.

Question is, what is the Quarterly Prize for this month? Well I have a marble based bronze-like statue of three dolphins as an option or I could have an underwater MP3 player. Then again I could obtain something else in the next few days. Whatever the case the entire raffle will be loaded up as usual to start the new year. You just need to bring the losing tickets you purchased the last two months in order to have a greater chance on that big item.

Don't forget to stick around after the raffle for the chance to win a meal from Fuddruckers just for being in attendance. Then if that's not enough the cash draw for this month is starting fresh at \$30. No purchase to win, just be in your seat when your name is drawn. If not then it goes up \$10 for the next month.

Please see Laurel or Tom to purchase your raffle tickets.

See ya at the meeting...

*Don*

## 2007 - FREE RAFFLE TICKETS -

Here are two ways to obtain extra raffle tickets in a month. The first one there is absolutely no obligation. Just have it be your birthday month and I will give you 5 free tickets with proof of your birthday (I don't want someone to have 12 birthdays this year). - See Don for these free tickets.

Then as an added bonus, with a minimum raffle purchase of \$5 (on your 1st purchase only for the month) if you wear a SOCDC shirt or SOCDC sweatshirt or any article of clothing with the new club design you will receive 3 free raffle tickets.

That was easy... Now if you read the monthly newsletter there may be occasion for extra raffle ticket perks which would be announced in the newsletter or thru an email. There are none this first month but I'm 100% sure there will be in February. It's Valentines day and our club meeting will be moved to a different date for obvious reasons. Watch the next newsletter for info on special free ticket offer....

*Meeting is Jan. 10th at 6:30 at Fudd's*

*Please note - next month's meeting will be changed due to Valentine's Day...stay tuned for developments.*

***Raft-Up Schedule***  
***Saturday Jan 27***  
***Saturday Feb 10***  
***Saturday March 24***  
***Saturday April 21***



**Come join us Wednesday Night  
for Good Food and Good Friends!**

