

Featuring the 1st annual L.A. Riverwatch Report Card

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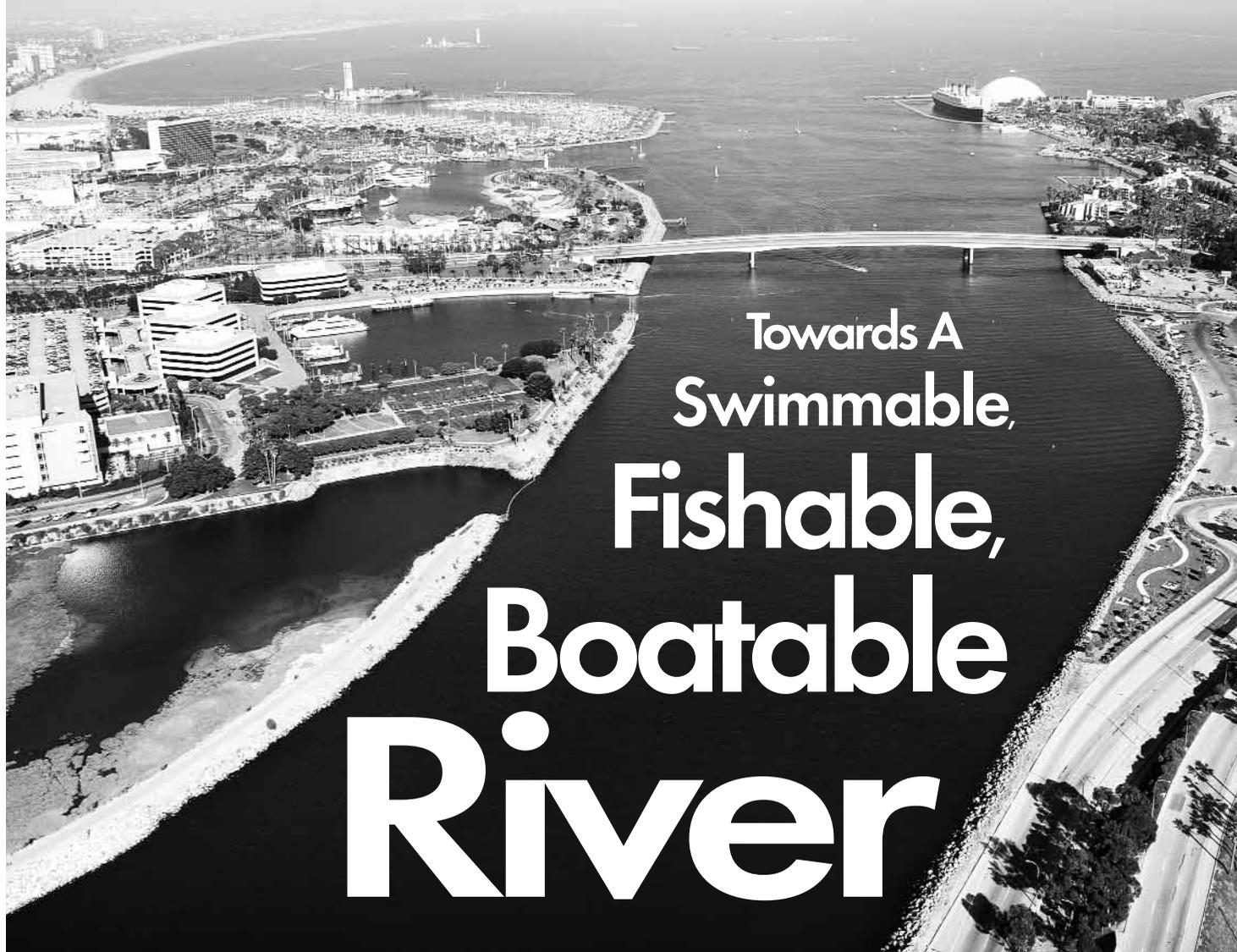
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Towards A Swimmable, Fishable, Boatable River

Friends of the LOS ANGELES River

River's Mouth, Long Beach

Photo: Lane Barden

STATE OF THE RIVER 2005:

L.A.'S ENVIRONMENTAL POSTER CHILD

WHEN SEEN IN ITS GREEN AND LIVING STATE IN THE SEPULVEDA BASIN OR the Glendale Narrows, or its channelized version the bulk of its 52 mile journey from Reseda to the Long Beach Harbor, the Los Angeles River gives us a glimpse of the nature of Los Angeles. It reveals a sustaining organic environment that we can no longer afford to deny. With the aid of such groups as FoLAR, founded in 1986, the Los Angeles River has become a poster child for the long ailing health of Southern California's environment, a visual on which to hang our anxieties and our hopes for renewal of our long degraded urban ecosystem.

Urban runoff today poses one of our greatest environmental challenges. The trash and pollutants experts call "urban hash" is carried from driveways, sidewalks and streets of inland Southern California to the Los Angeles River to be swept into Santa Monica Bay and the Pacific Ocean. Scientists on the Long Beach-based research vessel *Alquita* have found evidence of Los Angeles' "plastic plume" of urban runoff six thousand miles at sea where plastic now outweighs plankton six pounds to one.

The nation as a whole has attempted to deal with water quality issues since the federal Clean Water Act of 1972. During the first few decades of its passage, effective control of "point source pollution" had been the primary focus, identifying and controlling known sources of water pollution such as factories and businesses. Most recently

"non-point source pollution," pollution resulting from no readily identifiable or prosecutable source, has become the government's focus.

Nonpoint source pollution is today considered the greatest contributor to urban runoff. It comes from residents dump-

ing oil and cleaning paint brushes in the gutter, to litterers, to windblown plastic bags to car brake lining dust washing from roads into the river with each rain. As Los Angeles County's 10 million plus population continues to explode, so does the amount of our toxic urban runoff.

Scientists on the Long Beach-based research vessel *Alquita* have found evidence of Los Angeles' "plastic plume" of *urban runoff* **six thousand miles at sea** where plastic now outweighs plankton **six pounds to one.**

Since the 1980s, environmental groups have filed lawsuits to force the government to control nonpoint source pollution. In Southern California, Heal The Bay and the Natural Resources Defense Council won a 1999 suit to force the regional Water Quality Control Board and the cities of the Los Angeles River Basin to uphold the Environmental Protection Agency's standards for non-point source pollution.

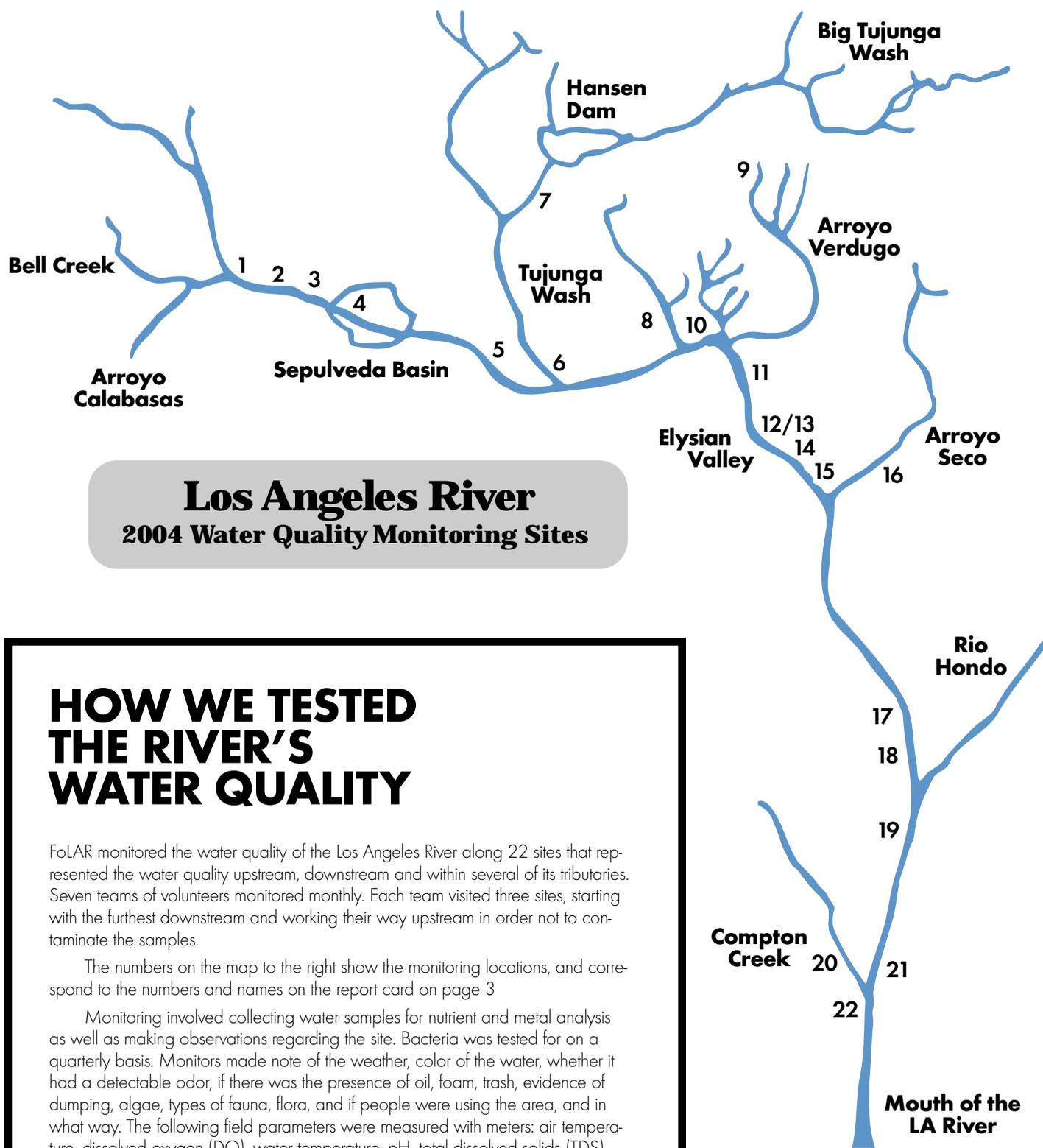
The cumulative result of these efforts both locally and nation wide is the development of TMDLs, or Total Maximum Daily Loads. TMDLs specify the maximum amount of a pollutant a waterbody can receive before losing its designated beneficial use rating. Such ratings indicate whether a river or lake can be used for swimming or drinking or non-water contact activities like boating.

Thanks to the efforts of FoLAR, the Los Angeles River has retained its official "Rec 1" beneficial use designation, declaring its official aspirations to someday return to its original state as a swimmable, drinkable and fishable river. As can be seen in this report, it is currently none of those things. Future reports will help track the river's progress toward that goal.

The first TMDL established for reaches of the Los Angeles River is for trash. An estimated 367,500 gallons of trash generated from 584 square miles of the Los Angeles watershed lands annually in the river. As of 2002, this estimated baseline TMDL must be reduced by 10 percent a year until it hits 0 by 2012. While a coalition of small cities are fighting the TMDL enforcement based primarily on its cost, Los Angeles City voters recently passed Prop O, a \$500 million bond initiative that includes trash catching technology to meet the TMDL mandate, a clear indication that when given the choice, people choose a clean river.

While capturing trash at the storm

L.A.'S POSTER CHILD



**Los Angeles River
2004 Water Quality Monitoring Sites**

HOW WE TESTED THE RIVER'S WATER QUALITY

FoLAR monitored the water quality of the Los Angeles River along 22 sites that represented the water quality upstream, downstream and within several of its tributaries. Seven teams of volunteers monitored monthly. Each team visited three sites, starting with the furthest downstream and working their way upstream in order not to contaminate the samples.

The numbers on the map to the right show the monitoring locations, and correspond to the numbers and names on the report card on page 3

Monitoring involved collecting water samples for nutrient and metal analysis as well as making observations regarding the site. Bacteria was tested for on a quarterly basis. Monitors made note of the weather, color of the water, whether it had a detectable odor, if there was the presence of oil, foam, trash, evidence of dumping, algae, types of fauna, flora, and if people were using the area, and in what way. The following field parameters were measured with meters: air temperature, dissolved oxygen (DO), water temperature, pH, total dissolved solids (TDS), color and velocity.

Nutrient Testing was performed in the FoLAR laboratory, bacteria samples were taken to the Southern California Marine Institute for analysis, and metal samples were analyzed at the Bay Keeper's science laboratory.

Angeles River's water quality through regular and ongoing monitoring has become a primary focus for FoLAR. The more the public and governing agencies know of the River's contents and condition, the better equipped we are to control the poisons that today flow all too freely into it.

While the city and county of Los Angeles do limited monitoring of aspects of the River's water quality, the state has been forced to cut back since the mid-'90s from weekly testing to infrequent testing of major California rivers. The federal government claims to want to test major rivers once every five years, but refuses to fund the effort. Last year's scheduled federal testing of the Los Angeles River was dropped for lack of money. They hope to get to it this year. And none of the information accrued by these government agencies is readily available to the public. FoLAR aims to change that.

Since April, 2003, non-profit FoLAR has been the only group to provide ongoing monthly monitoring of the River's water quality at 21 testing stations along the River's entire length. FoLAR's use of citizen monitors for water quality testing gives them a powerful connection to the urban environment, helping to cultivate a concerned citizenry with an intimate awareness our region's environmental needs. Our monitors come primarily from the Los Angeles Conservation Corps and more information about them can be found in the accompanying LACC box.

FoLAR is also the only non-profit organization devoted to the stewardship and revitalization of the Los Angeles River to emphasize membership. As part of our mission to give the River back to the people, this State of the River Report hopes to make the River's water quality available and readily understandable to all the public, making them informed and enlightened stakeholders in our River's future. **FoLAR**

drains is one way to meet the TMDL standards, taking on trash producers is another. FoLAR has contributed to that effort through the trash sorting and characterization conducted at its 15th Annual La Gran Limpieza Great Los Angeles River Cleanup in the spring of 2004. FoLAR's 2004 river clean-up was the nation's largest, with some 3,000 volunteers collecting 25 tons of trash, half of which went to recycling rather than the landfill.

Lupe Vela, senior staff of the Ad Hoc Committee on the Los Angeles River, and certified waste characterizer, spearheaded the trash sorting effort in 2004 "because I was appalled at the number of plastic bags in the river and hoped to create some momentum against them. It's a beginning of the discussion." The resulting pie chart, shown here (also available at www.folar.org) shows that the majority of the trash collected from the river is plastic, and most of that is plastic bags and film.

Since their introduction in the 1950s, plastics bags have become a planet wide plague. They not only cause visual blight but are a choking hazard for wildlife and leach toxins into the water and soil as they break down. In 2002 the South African government required manufacturers make a more

durable and ultimately expensive plastic bag, causing a 90 percent reduction in their use, while Ireland that same year instituted a fifteen cent per bag tax, leading to a 95 percent drop in use. Currently nations considering banning or taxing plastic bags include Australia, Canada, New Zealand, the Philippines, Kenya, Taiwan, Uganda and the United Kingdom (more information on this subject can be found at www.world-watch.org/pubs/goodstuff/plasticbags/.)

Armed with solid evidence of the plastic bag problem as witnessed in the L.A. River, Vela has established the City of Los Angeles Plastics Task Force to confront the plastics industry and responsible retailers. Recommendations of the 23-member task force that includes a FoLAR representative contain an "Adopt-A-River" program and increased consumer education to encourage recycling and discourage littering. These are a start, yet fall short of the proven effective actions of charging per bag deposits or taxing bag use.

Even more important than trash capturing in the effort to bring the Los Angeles River back to its Rec 1 designation is water quality assessment. Determining the Los

We Couldn't Do It Without Them:

Los Angeles Conservation Corps' Clean and Green and Adult Corps.

FoLAR couldn't have done its River Watch water quality monitoring effort without the Los Angeles Conservation Corps' Clean and Green program and its Adult Corps. Both groups have also provided vital support services for FoLAR's Annual La Gran Limpieza Great Los Angeles River Cleanup.

Since its founding in 1986 by former U.S. Secretary of Commerce, Mickey Kantor, The Los Angeles Conservation Corps has become the nation's largest nonprofit youth corps, employing and educating thousands of L.A. youth. LACC receives funding from various state, city and county agencies, as well as private donors and foundations.

LACC's Clean and Green program trains and provides paid employment for students aged 13-17 on urban beautification projects such as tree planting, mural painting and community garden building. Students from

throughout the city's 15 council districts act on work requests from businesses, community organizations and homeowners. Clean and Green students learn the importance of job and community commitment, while getting an on the job environmental education.

The Adult Corps works annually with some 300 young adults aged 18-23, providing education and jobs focused on the urban environment. These include California State Department of Conservation sponsored recycling programs and major tree planting projects throughout the city of Los Angeles. Adult Corps members also get a chance to finish their high school education at LACC's Excelsior Education Center. Participants alternate school and work days, eventually earning not only a paycheck, but a diploma and the right to graduate in cap and gown at LACC's annual ceremony.

WHAT WE TESTED FOR

pH A measure of the relative acidity or alkalinity of water. The range of water suitable for most life in freshwater environments is between 5 (alkali) and 9 (acidic). Pure water is neutral, having a pH of 7.00. Industrial pollution dissolved in rain drops and organic acids from decomposing matter can shift a water's pH toward the acidic (higher pH).

TDS (Total Dissolved Solids): The dissolved solids in water. A water supply of 1000 TDS is considered undesirable for human consumption and most irrigation.

DO (Dissolved Oxygen): Virtually all aquatic life requires some level of oxygen dissolved in water to exist. Warm water holds less dissolved oxygen than cold water. Consistently high oxygen content allows a body of water to support more numbers and variety of aquatic organisms.

Turbidity A measure of water cloudiness caused by small particles of solids which don't easily settle to a container bottom. Turbidity blocks life sustaining light to organisms requiring it, such as fish, plants and insects.

Temperature A measure of water temperature. Warmer water holds less oxygen and supports less life. Temperature can also affect water's pH. The Los Angeles River was once one of the southernmost steelhead trout runs, but steelhead can not survive at a temperature of more than 72 degrees Fahrenheit (22 degrees Celsius.)

Nutrients (nitrite nitrogen, nitrate nitrogen NO₃, ortho phosphate high and ortho phosphate low): The nutrients most often responsible for water quality degradation are nitrogen and phosphorus. Plants normally use nitrates as the source of nitrogen needed by all living beings; but excessive concentrations of nitrates in streams greater than about 5 milligrams per liter can cause excessive growth of algae and other plants, leading to accelerated eutrophication or "aging" of a river. Nitrates and nitrites can get into water as a result of the direct run-off of fertilizer and sewage effluent, or run-off from land where manure has been applied or stored.

Report Card

L.A. River YEAR *2005*

Site	Days Tested	Days Failed	% Days Failed	% Days Passed	Letter Grade	Grade Point
1. Owensmouth	9	9	100	0	F	0
2. Reseda	10	7	70	30	F	0
3. White Oak	9	2	33	77	C	2
4. Balboa	11	2	18.2	81.8	B	3
5. Coldwater	11	5	45.5	54.6	F	0
6. Moorpark	8	6	75	25	F	0
7. Tonopah	7	4	57.2	42.8	F	0
8. Lamer	10	9	90	10	F	0
9. Verdugo Wash	9	7	77.7	22.3	F	0
10. Bette Davis	8	3	37.5	62.5	D	1
11. Los Feliz	11	3	27.3	72.7	C	2
12. Fletcher	6	1	16.7	83.3	B	3
13. Fletcher 2	5	1	33.4	66.6	D	1
14. Riverdale	8	4	50	50	F	0
15. Oros	8	1	12.5	87.5	B	3
16. Arroyo Seco	9	2	22.3	77.7	C	2
17. District	12	10	83.4	16.6	F	0
18. Gage	12	12	100	0	F	0
19. Imperial	8	7	87.5	12.5	F	0
20. Compton Creek	9	1	11.2	88.8	B	3
21. Oregon	9	8	88.9	11.1	F	0
22. Wardlow	9	6	66.7	33.3	F	0
Number of Sites 22	Overall GPA 0.909		Overall Grade F			

State of the River Report Card

L.A. River 2005

This report card is the result of **one year's worth of monitoring the water quality of the Los Angeles River and its tributaries** by Friends of the Los Angeles River. **Twenty two sites** were monitored for water temperature, dissolved solids, turbidity, pH, nitrate, nitrites and total dissolved solids (TDS). The **Water Quality Objectives (WQOs)** used in this study were based on those used in the Los Angeles River Basin Plan. **The term "failed" means results that failed to meet the WQO for "good" water quality.** Because only limited testing was done for bacteria, those results are not included in this report card, though **bacteria counts consistently exceeded Health Department standards** for all three organisms monitored. As part of

FoLAR's mission to give the River back to the people, this Report Card hopes to make information about the River's water quality available and readily understandable to all the public, making them informed and enlightened stakeholder's in the River's future.

More **detailed information** about the water quality monitoring program, including analysis of bacteria testing, can be found at www.folar.org. Or, for more information, please call **FoLAR at 323-223-0585**.

**Friends
of the
LOS ANGELES
River**



Vogel Flats, Tugunga Wash
Los Conquistadores (detail)
painting by Connie Jenkins (see page 7)

FRIENDS OF THE L.A. RIVER'S TRASH SORT

Thea Wang, River Watch Coordinator

WHILE THE LOS ANGELES RIVER HAS MANY POLLUTION PROBLEMS, THE MOST VISIBLE IS TRASH. Debris in the River not only is unsightly but it is also a serious threat to aquatic life and the health and safety of humans. Trash can smother immobile organisms and clog natural habitat. Animals mistake it for food that can result in fatalities. Humans as well as animals are vulnerable to injury and entanglement from debris. Trash enters the River and tributaries via urban run off from the streets, dumping and recreational uses. Trash, such as fast food wrappers and cigarette butts dropped on sidewalks and streets, goes in to curbside openings called catch basins. Clothes, car parts, and shopping carts that are dumped along the banks of the River eventually end up in it. Often people enjoying the River unfortunately leave behind picnicking debris such as Styrofoam cups and plastic drink bottles which all contribute to the problem. Through catch basin inserts, and public education campaigns the trash has been reduced but every May there is still enough for Friends of the Los Angeles River (FoLAR) to host La Gran Limpieza, the Great Los Angeles River Clean Up. Even though a one day clean up does not solve the trash problem (despite FoLAR volunteers dragging out 30 tons of trash at the 2005 clean up), it does a great deal to bring people to the River and draw attention to the issue.

At the May 1, 2004 FoLAR's 15th Annual La Gran Limpieza, Great Los Angeles River Clean Up, a trash survey was conducted at the Willow Street clean up site in Long Beach, one of 10 clean up sites that day, in which volunteers sorted and characterized the collected trash. A random sample of the debris was separated and sorted in to eight different categories. Each category was weighed and visible name brands were recorded. Metal and plastic film made up the largest percent of types of trash by weight and volume. A large portion of the recognizable trash was related to snack food wrappers and fast food restaurant packaging.

MATERIALS AND METHODS — The Willow Street site was chosen because of its proximity to the mouth of the River. The debris collected there can come from all upstream sections of the river and tributaries as well as from trash deposited at the site. Access to the Willow Street site is at the intersection of West 25th Street and De Forest Ave in Long Beach, California (90806). The clean up was conducted on the east bank of the River downstream of the Willow Street Bridge for about 0.25 of a mile. At the bottom of the steep concrete channel walls, this section of the River is soft bottomed and there are sand, rocks trees and other plant life for the debris to get stuck in. There were around 100 people (including children) who donned gloves and went down into the channel to collect trash in large garbage bags. The volunteers collected trash from 9:00 A.M. until 11:00 A.M. The trash was sorted throughout this time starting with the first five bags.

One out of every five bags that the volunteers filled with trash was separated out to be sorted. Plastic tarps were laid on the ground with a sign to designate areas for each of the following categories: clothes, glass, metal, molded plastic, paper, plastic film, Styrofoam and other (Figure 1. and 2.). A group of ten California Conservation Corps members sorted the trash. Each bag of trash was emptied out and sorted into piles on the tarp. Some examples of items in the molded plastic category were things such as plastic bottles and buckets. Examples from the plastic film category are snack food wrappers and plastic bags. The Other category contained items such as dirty diapers and cell phones. The names of all recognizable brands were recorded. After the bags were sorted each category was re-bagged and weighed. The volume of the category was determined by how much of a bag or how many bags the pile filled up.

RESULTS — Sixteen bags, 20 percent of the total trash, picked up at the Willow Street site were sorted. The estimated weight of all the 80 bags of trash that was collected was 762.5 pounds (including the weight of the plastic garbage bags they were contained in) (Table 1.). At 35.39% (Figure 3.), metal accounted for the largest portion of the weight of the trash, but it was second in the volume at 18.18% (Figure 4.). On the other hand, plastic film came in first in volume at 45.55% and second in weight at only 26.58%. The third heaviest category was Other at 16.39%, which was comprised of dirty diapers and a cell phone. The Styrofoam weighed less than we could record with the scale (0.1lb).



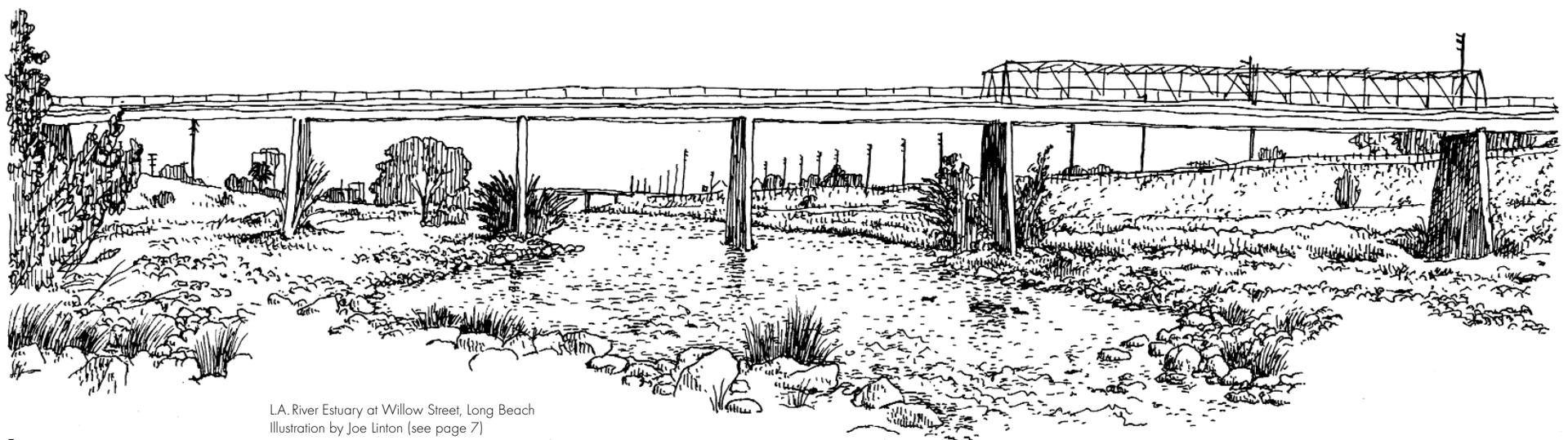
FIGURE 1. STYROFOAM PILE DURING MAY 1, 2004 TRASH SORT



FIGURE 2. MOLDED PLASTIC PILE DURING MAY 1, 2004 TRASH SORT

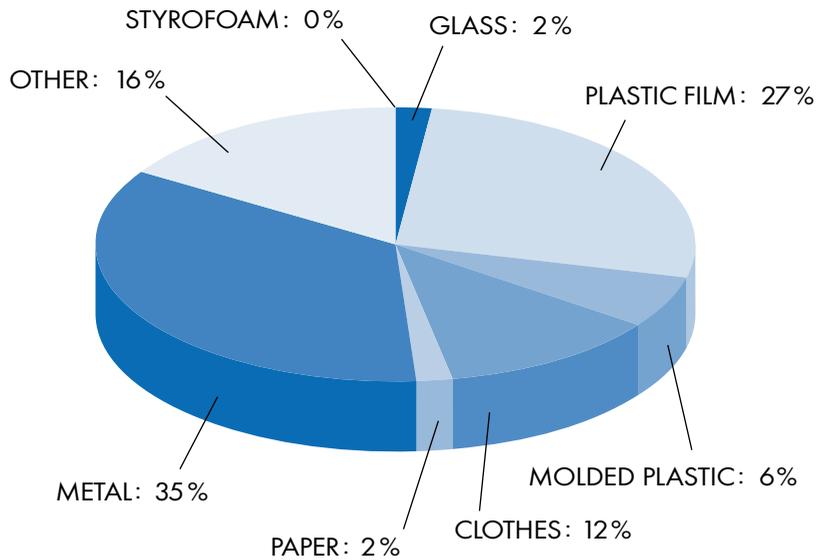
TABLE 1. TRASH SORT CATEGORIES, EXAMPLES AND WEIGHT

CATEGORY	EXAMPLE	WEIGHT (pounds)
Clothes	Shirts, pants	18
Glass	Bottles	3
Metal	Drink cans, aerosol cans, car parts	54
Molded Plastic	Bottles, buckets	9.5
Paper	Cups, boxes, cardboard	2.5
Plastic Film	Plastic shopping bags, fast-food wrappers	40.5
Styrofoam	Coffee cups, 76 ball	0
Other	Dirty diapers, cell phone, electronic parts	25
Total		152.5



L.A. River Estuary at Willow Street, Long Beach
Illustration by Joe Linton (see page 7)

FIGURE 3.
CHART OF THE PERCENT WEIGHT
OF SORTED TRASH

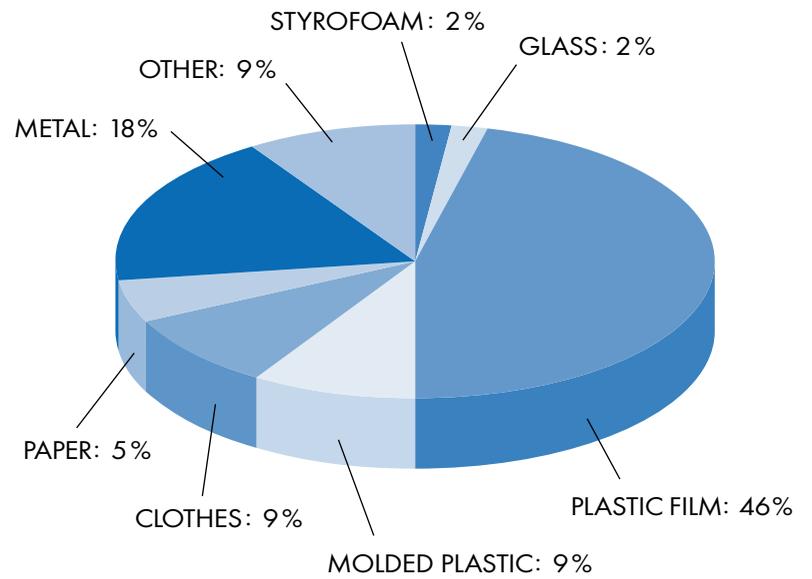


Most of the individual pieces of trash were fast food wrappers and scraps of plastic bags. The majority of the recognizable brand names were from snack foods such as Frito-Lay, their Doritos® and Cheetos® being most popular amongst litterers, and fast food restaurants such as McDonald's® and Jack in the Box®.

TABLE 2. TRASH SORT VISIBLE BRANDS AND CATEGORY OF ITEM

SNACK FOOD WASTE (number of items)	CATEGORY
Airheads candy wrapper	Plastic film
Baskin Robbins ice cream cup	Paper
Blue Bunny ice cream wrapper (2)	Plastic film
Brisk Ice Tea bottle	Molded plastic
Dr Pepper bottle	Molded plastic
Dreyers ice cream cup	Molded plastic
Frito Lay wrappers (38), (Cheetos, Doritos, sunflower seeds etc.)	Plastic film
Goldfish cracker bag	Paper
Grandma's cookies	Plastic film
Hostess cup cakes	Plastic film
Pepsi cup	Molded plastic
Reese's Pieces bag (2)	Plastic film
Ritz Crackers bag	Plastic film
Skittles candy wrapper	Plastic film
Snickers candy wrapper	Plastic film
Wonder Bread bag	Plastic film
FAST FOOD RESTAURANT WASTE	CATEGORY
7-11 nachos plate	Molded plastic
AM PM coffee cup	Styrofoam
Jack in the Box cup (3)	Molded plastic
McDonald's Coffee cup (2)	Styrofoam
McDonald's Cup	Paper
McDonald's Happy meal bag (2)	Plastic film
Quizno's cup	Molded plastic
Taco Bell cup	Molded plastic
OTHER WASTE	CATEGORY
76 Styrofoam ball	Styrofoam
99 Cent Store bag	Plastic film
Big Bear Mountain water bottle	Molded plastic
Budweiser beer box	Cardboard
caution tape	Plastic film
Gunk brake fluid container	Molded plastic
Right Guard can	Metal
spray paint can	Metal
TDK tape wrapper	Plastic film
Tide laundry detergent box	Molded plastic
Tidy Cat cat litter bucket	Molded plastic
WD40 spray can	Metal

FIGURE 4.
CHART OF THE PERCENT VOLUME
OF SORTED TRASH



DISCUSSION – The largest percent of the weight of the trash that was collected was from metal. This is not surprising due to the large mass of metal. From previous experience this site seems to have a larger quantity of large metal pieces than further up stream. Because of the size of many of these objects it is unlikely that they entered the River through catch basins. It is possible that these items were dumped or somehow fell into the River. On the surface it seems that the metal is less dangerous than plastic for aquatic life because they are less likely to mistake it for food but it is possible that contaminants from the metal are leaching into the water.

Plastic film made up the second largest percent of the total weight which shows how much there was as each piece weighs much less than the metal that was collected. From this survey it appears that the largest volume of trash in the River is from disposable snack food and fast food packaging, possibly discarded by people using the River on the bike path as well as being washed downstream. It is possible that if the trash is coming from people recreating on the Riverbanks some extra trash cans would prevent some of the trash from ending up in the River. It is more probable that the plastic food wrapper epidemic is a Los Angeles countywide problem, (no doubt world wide) and will take a major change in packaging, consumption disposal and education to make a difference.

There was a distinct lack of styrofoam at this site that has been found on beach clean ups. It is possible that because styrofoam floats and it would travel further down the River into the sea. There were also only a few glass items. There were reports from the local residents that bottles are collected frequently for recycling. Nothing smaller than a quarter was picked up so we did not find any cigarette butts or plastic pellets that might have been found if we sieved the sand.

As a representative study for the trash in the whole River this survey is limited. First of all, the trash was collected by volunteers who were cleaning the River rather than those who were trained to characterize the trash. As a result, it is possible that not all of the trash that was there was recorded. It is possible that volunteers could have left items that were hard to get to, too heavy or they did not want to pick up. Secondly, we only sampled a small portion of the trash at our site which is also only one site on the River. The survey was also done in the dry season which might not represent the trash at all times of the year. To get a more comprehensive idea of what kinds of trash make up River debris, surveys could take into account smaller trash items such as cigarette butts and plastic pellets, and be conducted at a greater number of sites along the River and over an extended period of time. **FGLAR**

REFERENCES –

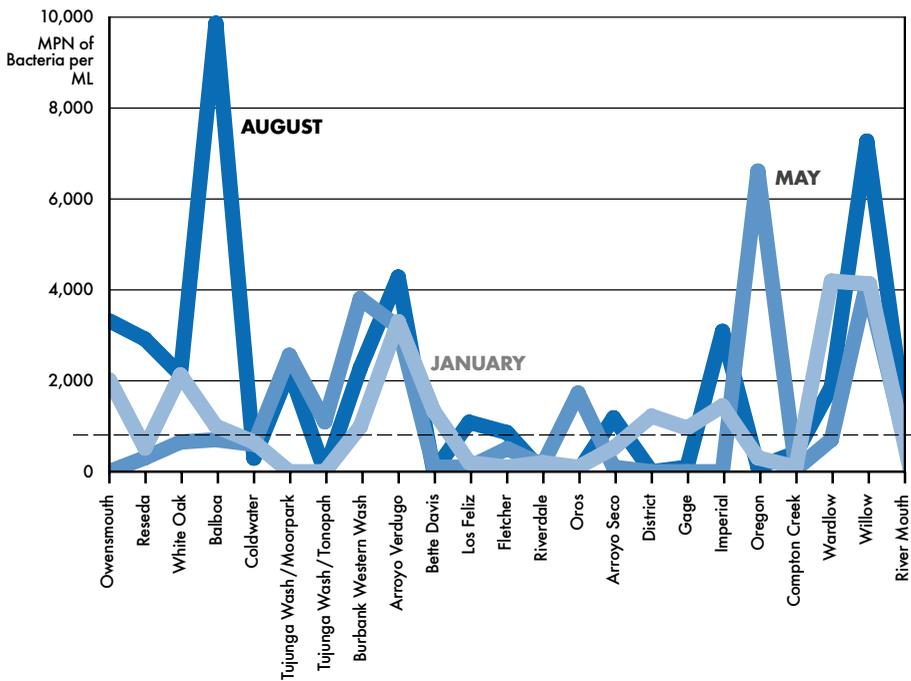
- Journals:**
Moore, S. L., et al (2001)
Composition and Distribution of Beach Debris in Orange County, California. Marine Pollution Bulletin. 42,241-245
- Web Sites:**
<http://www.conservationinstitute.org/marinedebris.htm>
- Brochures:**
City of Los Angeles, The Ocean Begins in Your Neighborhood

FOLAR RIVERWATCH BACTERIA RESULTS 2003-2004

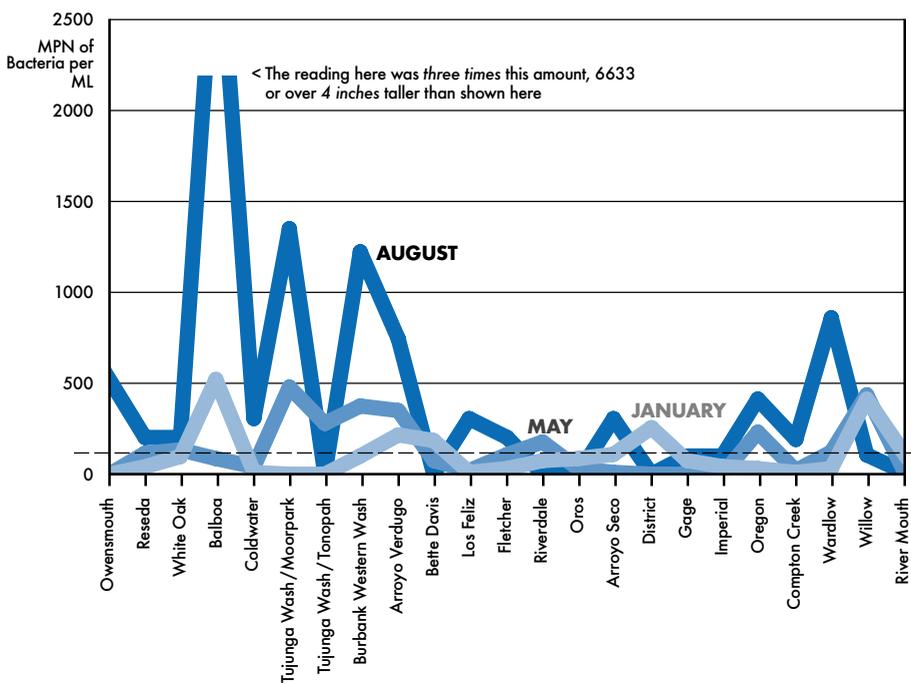
By Kerry Flaherty, Southern California Marine Institute

Kerry Flaherty, while still Coordinator for Environmental Monitoring at the Southern California Marine Institute, agreed to interpret the results of FoLAR's quarterly testing of river water for bacteria. Because we were unable to test for this monthly, the bacteria results are not included in the main report card and are presented here as separate charts.

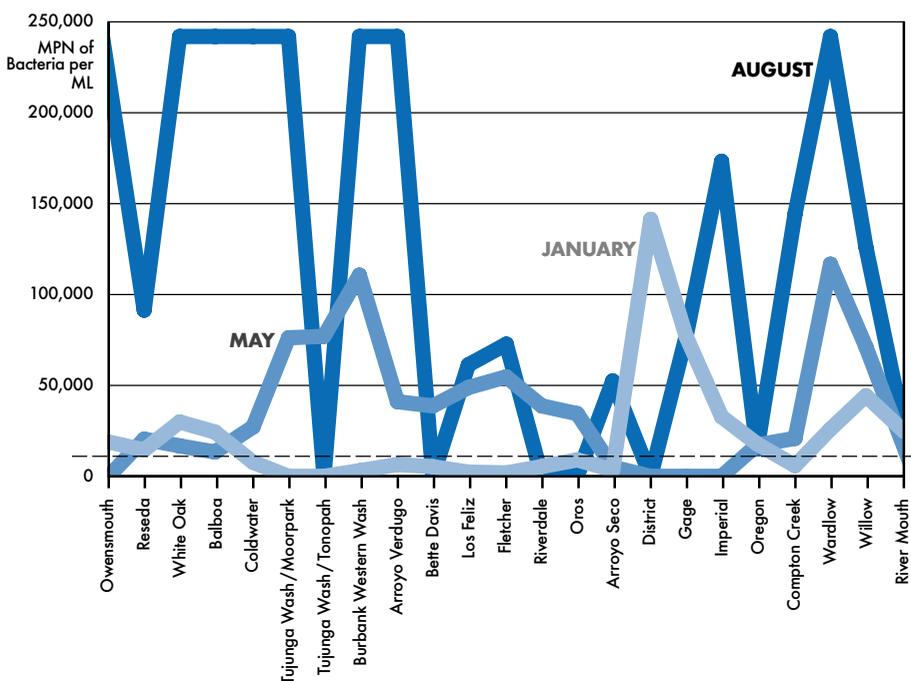
GRAPH 3: E. COLI AT FOLAR SITES



GRAPH 4: ENTEROCOCCUS AT FOLAR SITES



GRAPH 5: TOTAL COLIFORMS FOR FOLAR SITES



Regulations controlling the effluent of point-source pollution, mainly from sewage treatment systems, have significantly reduced impacts on the Los Angeles River. Non-point source pollution from runoff, both in dry and wet weather, is now the area of major concern. These sources are much more difficult to monitor and to correct.

Non-point source runoff can increase the amount of bacteria in surface

and coastal waters. Though waterfowl and marine mammals can also contribute to bacterial runoff, especially near coastal wetlands and other suitable habitats, freshwater outlets such as storm drains are found to be especially high contributors of bacterial contamination (Noble et. al. 2000, Gold et. al 1992, Schiff 1998). Total and fecal coliform and enterococcal bacteria are used to indicate the likelihood of pathogenic organisms, such as viruses, in surface waters. The levels of these bacteria have been correlated to the incidence of illness in swimmers. The presence of coliform bacteria indicate potential health risks to users of recreational waters, and

specifically enterococcus bacteria have been shown to cause health risks including stomach flu and other infections. The amount of these indicator bacteria in Southern California rivers and coastal waters may be dependent on season, and have been linked to rainfall amounts (Noble et. al. 2003).

Assembly Bill 411 states that the following limits developed by the Department of Health Services should not be exceeded for bacterial indicators: 10,000 MPN / 100mL for total coliforms, 400 MPN / 100mL for fecal coliforms, and 104 MPN / 100mL for enterococcus (MPN = Most Probable Number). Although all of the sites FoLAR monitors are in the L.A. River, the quality of the water upstream can greatly affect the recreational beaches in the City of Long Beach, as seen in the data collected.

Without exception, the results of our water quality monitoring grossly exceed Health Department standards for all three organisms monitored at every single test site. FoLAR

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TABLE 3: AB 411 EXCEEDENCES BY STATION

Site	Coliforms	E coli	Enterococci	Total	Number of Results	Percent Exceeding
L.A. River at Owensmouth Ave.	2	2	1	5	6	83.33%
L.A. River at Reseda Blvd.	3	2	2	7	9	77.78%
L.A. River at White Oak Ave.	5	4	2	11	13	84.62%
L.A. River at Balboa Blvd.	4	4	2	10	11	90.91%
L.A. River at Coldwater Cyn. Ave.	3	2	1	6	13	46.15%
Tujunga Wash at Moorpark St.	3	3	2	8	8	100.00%
Tujunga Wash at Tonopah St.	1	1	1	3	3	100.00%
Burbank Western Wash	3	5	2	10	13	76.92%
Arroyo Verdugo	2	4	3	9	11	81.82%
L.A. River at Bette Davis Picnic Area	1	1	1	3	6	50.00%
L.A. River at Los Feliz Blvd.	2	1	1	4	9	44.44%
L.A. River at Fletcher Dr.	2	2	2	6	9	66.67%
L.A. River at Riverdale Ave.	2		2	4	9	44.44%
L.A. River at Oros St.	1	1		2	6	33.33%
Arroyo Seco at Griffin Ave.	1	2	2	5	9	55.56%
L.A. River at District Blvd.	1	1	1	3	3	100.00%
L.A. River at Gage Ave.	2	1		3	6	50.00%
L.A. River at Imperial Hwy.	2	2		4	6	66.67%
L.A. River Oregon Ave.	3	1	2	6	9	66.67%
Compton Creek	5	2	1	8	17	47.06%
L.A. River at Wardlow Rd.	5	5	2	12	13	92.31%
L.A. River at Willow St.	16	17	10	43	58	74.14%
L.A. River mouth	11	9	5	15	62	24.19%

AT THE RIVER'S EDGE

Contemporary artists have helped draw the public's gaze back to the River Los Angeles tried to forget. Their vision is presented here and elsewhere in the State of the River. Here are their thoughts.

HANS SCHABUS (this page)

In Search of the Endless Column

(Western River, Los Angeles)

Headwater / Arroyo Calabasas, Bell Creek

Hans Schabus, Austria's representative to the 2005 Venice Biennale, plotted a week-long walk of the Los Angeles River's 52 miles in an effort to understand "how this land is apportioned, utilized and perceived." The resulting exhibit included maps, drawings, and photographs.



Los Angeles River, Ocean Boulevard, Long Beach

Photo: Hans Schabus

JOHN HUMBLE (this page)

John Humble's large-scale color photographs of the River reveal its ironies and paradoxes. "Some future explorer, stumbling across its entombed banks," he says, "will survey the ruins of Los Angeles and discover, to his amazement, that there once was a river here." He is represented by the Jan Kesner Gallery, Los Angeles.

JOE LINTON (page 4)

Linton illustrated and wrote FoLAR's *Down By The Los Angeles River* guide. He sees the river "as a place for connecting with nature in the midst of our inhospitable urban sprawl."



Los Angeles River, Sepulveda Basin, San Fernando Valley

Photo: John Humble

AARON BOCANEGRA (this page)

Porcúncula is an installation exploring the River through photographs, sculpture and video. Los Angeles-based photographer and designer Aaron Bocanegra says the work attempts to "create a story that may reveal more of (the River's) nature and ours, as its designer."

CONNIE JENKINS (page 3)

Jenkins' highly realistic oil paintings show the River's natural splendor as well as its blight. "In the same way that abstract art extracts a fragment from reality, manipulates it and reinterprets it," Jenkins says, "we have fragmented, abstracted and reconstructed the River." She is represented by the Craig Krull Gallery in Santa Monica.

LANE BARDEN (page 1)

The Los Angeles River, Fifty-Two Miles Downstream: An Aerial Survey of the L.A. River and Channel

"There is something profound in looking directly at what the environment has become," Los Angeles based artist Barden says. In the process, necessary questions are raised "about what we will do now, and where we are going from here."

FoLAR

TAMING OUR TOXIC TAP

There are more than 10 million people living in Los Angeles County and every one of us contributes to the region's toxic urban runoff just by virtue of our presence here. Toxic urban runoff is the stream of solid wastes and pollutants flowing from home gardens, driveways, roads and parking lots into the gutters and storm drains of Southern California directly into the ocean. This untreated stream of pollutants includes oil and anti-freeze from leaky cars, pet feces, foam fast-food packaging, and garden pesticides. Our region produces tens of millions of gallons of runoff daily from households, business and industry. According to the City of Los Angeles Stormwater Program, each year the runoff stream delivers 40 tons of trash to our beaches, 80 % of which could have been recycled. A monthly average of 870,000 cigarette butts move from the streets to storm drains to the beaches where wildlife often fatally mistake them for food. Foam cups and tin cans tossed by the casual litterer take 50 years to break down, while plastic bottles and disposable diapers take 450 years to disappear, releasing their toxins into the soil and water as they go. Millions of cars and trucks leave a daily deposit of brake lining dust on the roadways that gets washed into the river and out to the sea with each rain.

We can't stop the runoff, and our civilization needs to start looking at ways to treat it, like we do sewage, before it continues to poison our waterways and oceans. Until then, the best individuals can do is pay attention to the following, oft-repeated

lists of consumer tips to help mitigate the problem. The information should be common knowledge. It's not. We offer it here, one more time, along with phone numbers of agencies to contact to report acts of pollution, in an effort to help turn the tide against toxic urban runoff.

HOME & GARDEN

- Properly use and store toxic household products.
- Better yet, buy non-toxic products
- Use pesticides, herbicides and non-organic fertilizers sparingly—if at all. Often garden pests like aphids can be effectively hosed off a plant with water. Also consider that a plant inundated by insects or fungus might benefit by better placement in a garden.
- Prevent garden run-off by conservative watering, keep sprinklers from spraying into the street.
- Sweep rather than hose down driveways and sidewalks.
- Compost green waste from the yard, don't sweep it into street or gutter.
- Pick up after pets and properly dispose of the waste, preventing bacteria from washing into and polluting the waterways.
- Properly dispose of toxic household waste and paint through community drop-off centers for hazardous household waste. Check with your local city government for more details.
- Clean paint brushes in a sink where the runoff will be treated as sewage.



Los Angeles River, Gold Line Bridge, Lincoln Heights

Photo: Aaron Bocanegra

AUTOMOTIVE

- When changing auto fluids, use a drip pan. If a spill happens, soak it up with kitty litter or sawdust and properly dispose of that.
- Use biodegradable soap when washing your car and use as little water as possible. Better yet, go to a commercial car wash.
- Don't throw trash out of the car, keep a trash bag in the car and properly dispose of its contents.
- Maintain your car to reduce leakage of fluids like oil and anti-freeze.
- Buy oil, anti-freeze and batteries from establishments who recycle and properly dispose of them, or take the items to a community drop-off center for hazardous household waste.

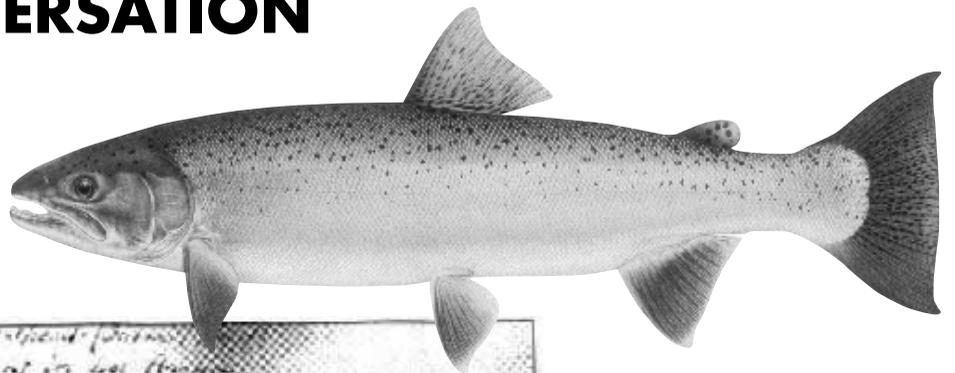
NUMBERS TO KNOW:

- Los Angeles County Department of Public Works, (888)CLEAN-LA/253-2652, for information about recycling and hazardous waste, to report illegal dumping, toxic spills and clogged catch basins.
- City of Los Angeles, Stormwater Program Hotline, 1-800-974-9794, to report toxic spills, illegal dumping and clogged catch basins.
- City of Los Angeles, Small Business Hazardous Waste Hotline, 1800-988-6942, for hazardous waste disposal.
- City of L.A. Recycling, 800-773-CITY for recycling.

FoLAR

A BRIEF BUT POINTED CONVERSATION WITH JIM EDMONDSON ABOUT STEELHEAD

Lewis MacAdams



From its inception, Friends of the Los Angeles has worked to create a river system healthy enough for the return of a number of species that were extirpated by the paving of the river, among them the yellow-billed cuckoo, the red-legged frog, and the steelhead trout. For the last twenty years no one has been a more articulate advocate in the human realm for that amazing fish than Jim Edmondson, the long-time Southern California manager of Cal-Trout, a 6,000 member organization based in San Francisco that works to protect wild trout, salmon and steelhead and their habitat.

In Southern California, the steelhead is in dire shape. Since the end of the 2nd World War, the fish's Southern California population has declined from 55,000 to less than 500 – a drop of approximately 99%. A few fish have adapted to survival in Malibu and Topanga Creek. There are great hopes for the revival of the Malibu Creek run when Ringe Dam is finally removed; but the last known steelhead in the Los Angeles River was caught in 1940. (see accompanying picture); and Edmondson says he hasn't heard of a L.A. River steelhead sighting in the twenty years he's worked at Cal-Trout.

Nobody knows how big the Los Angeles River steelhead run was; but if the historical run in Malibu Creek was estimat-

ed at about 1,000 fish, Edmondson says, the Los Angeles River run must have numbered at least 30,000 fish.

Over the 10,000 years or so that steelhead thrived in Southern California, the fish developed some powerful survival mechanisms. After salmon swim upstream to spawn, they die, but steelhead can spawn and then return to the ocean year after year. Of all the trout family, steelhead swim the furthest upstream to spawn, because the fish's DNA knows that in Southern California droughts can last forty years and steelhead need to reach streams that never go dry.

Edmondson argues that the steelhead are the ultimate indicators of a river's health, the canary in the coal mine. Headwaters, the main stem, the estuary and the ocean – all would have to be in place for the male and female steelhead to make their way upstream during the rainy season from San Pedro Bay at Long Beach



The southern steelhead, seen here after being caught in the Los Angeles River in this file photo from January 1940 in Los Angeles, has declined to near extinction in the past half century.

to the Angeles National Forest. A healthy L.A. River would benefit other forms of wildlife, too. Edmondson notes that 75% of all terrestrial wildlife in western United States is adjacent to living trout streams

I asked Edmondson what sort of water quality Steelhead require – I had just learned that any water temperature above 22 degrees Celsius is deadly to the fish's survival. "We don't go there," he replied. "The fish tells us if we're meeting the standards. A river can meet all the chemical standards, but if the fish can't get to the head waters, you don't have a steelhead run."

What then can we do?

"Let the fish go home," he replies

What does that mean?

"We need to restore the channel. We have to remove enough of the concrete that the fish can make it to the headwaters."

In your mind's eye, what would a healthy Los Angeles River look like?

"It has pools, riffles, runs and clean gravel. It has a lush riparian forest of native vegetation and trees in multiple age classes and clean, cold water.. It has a natural flow regime including high and low flows. And finally, it's free of man-made barriers, so that the fish can migrate throughout the watershed."

The report you are holding in your hand is dedicated to the coming of that day.

FoLAR

WHERE CREDIT IS DUE

FoLAR's first State of the River report provides one of the most complete looks yet at water quality in the main stem of the Los Angeles River. It summarizes a year's worth of water quality data gathered by Friends of the Los Angeles River, its partners at the Los Angeles Conservation Corps, and FoLAR volunteers.

From its earliest days, Friends of the Los Angeles River has been committed to scientifically-based public advocacy. These efforts have included commissioning the Los Angeles County Museum of Natural History to undertake the first ever biological inventory of the Los Angeles River in 1993, *The Biota of the Los Angeles River*, a landmark in the public perception of the river as a living system. In April, 2002, FoLAR proudly published two reports comprising the biological monitoring component of our RiverWatch program, *A Survey of Invasive Non-Native Plants, Primarily Arundo Donax, Along the Los Angeles River and Tributaries*, by Bill Neill, as well as *Avifauna Along Portions of the Los Angeles River*, by Peter H. Bloom, Chris A. Niemela, and Bettina Eastman. We consider our water quality monitoring program and this first State of the River Report to be the latest phase of our RiverWatch program.

This report owes a great debt to City of Los Angeles' Bureau of Sanitation, especially Mike Mullin for his long and unflagging commitment to our ongoing financial support and helping to assure the accuracy of our science. We also want to thank Kerry Flaherty of the Southern California Marine Institute, Erick Burres, who co-

oversees the citizen water quality monitoring effort for the State Water Quality Control Board, and Jon Bishop, the director of the Los Angeles Regional Water Quality Control Board. Throughout the project we have relied on the commitment, discipline, and enthusiasm of the Los Angeles Conservation Corps - both the Adult Corps and Clean & Green, and LACC director, Bruce Saito.

The Los Angeles River Report card was primarily conceived and executed by FoLAR super-volunteer Andrea Mitchel, who also created the graphs. Other volunteer river heroes contributing to this report include Barbara Tarnowski, Angie Berra, Christian Fenton, Jonathan Brooks, and Mardy Rosal.

It was funded by generous grants from The Rose Foundation, Metropolitan Water District, AMB/Legacy Partners and its former Exec. Vice-President Bill Shubin

The State of the River report was edited by Nancy Spiller and written by Lewis MacAdams and Nancy Spiller (except where noted otherwise).

Four scientists were especially helpful in guiding and reviewing this document:

John F. Shisko, City of Los Angeles Bureau of Sanitation

Stephen McCord, Larry Walker and Associates, Davis, CA

Erick Burres, State Water Quality Control Board

Kerry Flaherty, Southern California Marine Institute

RiverWatch will forever be indebted to the three passionately dedicated coordinators, Zhetonia Piluso, Thea Wang, and Nidia Garcia who have led the monitoring charge. The project and report were overseen by FoLAR executive director Shelly Backlar.

For a more complete report with more in-depth data and analysis please visit our web site at www.FoLAR.Org

FoLAR

BECOME a FRIEND of the LOS ANGELES RIVER

Friends of the LOS ANGELES River

Are you interested in knowing more about the health of the Los Angeles River? Want to know what you can do to make a difference?

Join Friends of the Los Angeles River (FoLAR) TODAY!

As a non-profit organization, FoLAR relies on contributions from people like you to collect and share information about the River's health, educate the community on ways they can make a difference and advocate for the revitalization and restoration of the Los Angeles River.

As a Member you will be invited to River-related events, celebrations, lectures and free monthly river walks throughout the year. And then there are the fabulous member-

ship incentives: including LA River t-shirts, sweatshirts, note cards, and private River tours!

Become a Friend of the Los Angeles River and lend your voice to the thousands of others who believe that a healthy River is essential to the vision of a healthy Los Angeles.

Memberships range from \$35, \$50, \$100 and up. For more information on participation levels and their benefits, visit our website at www.folar.org, call us at 323-223-0585, or make your check out to FoLAR and mail it to:

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