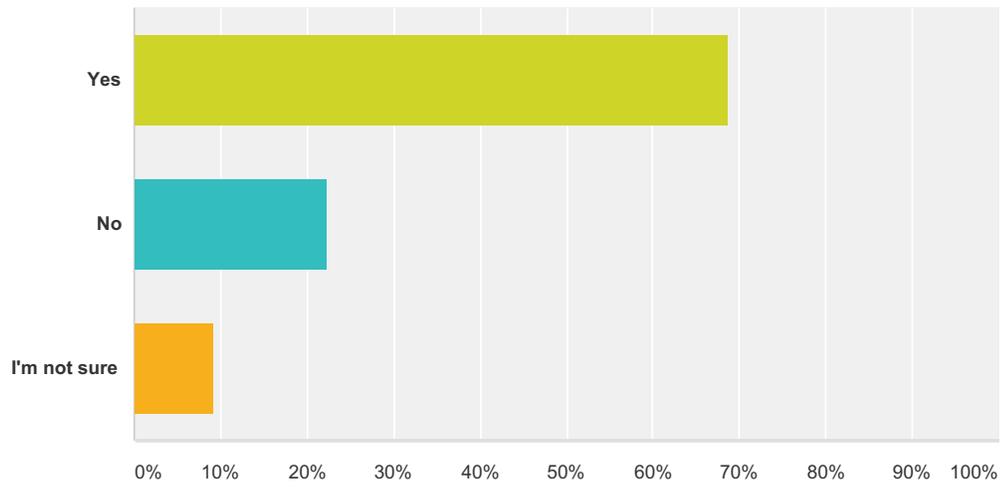


Q1 Do you live or work near the Fitzgerald Marine Reserve?

Answered: 121 Skipped: 1



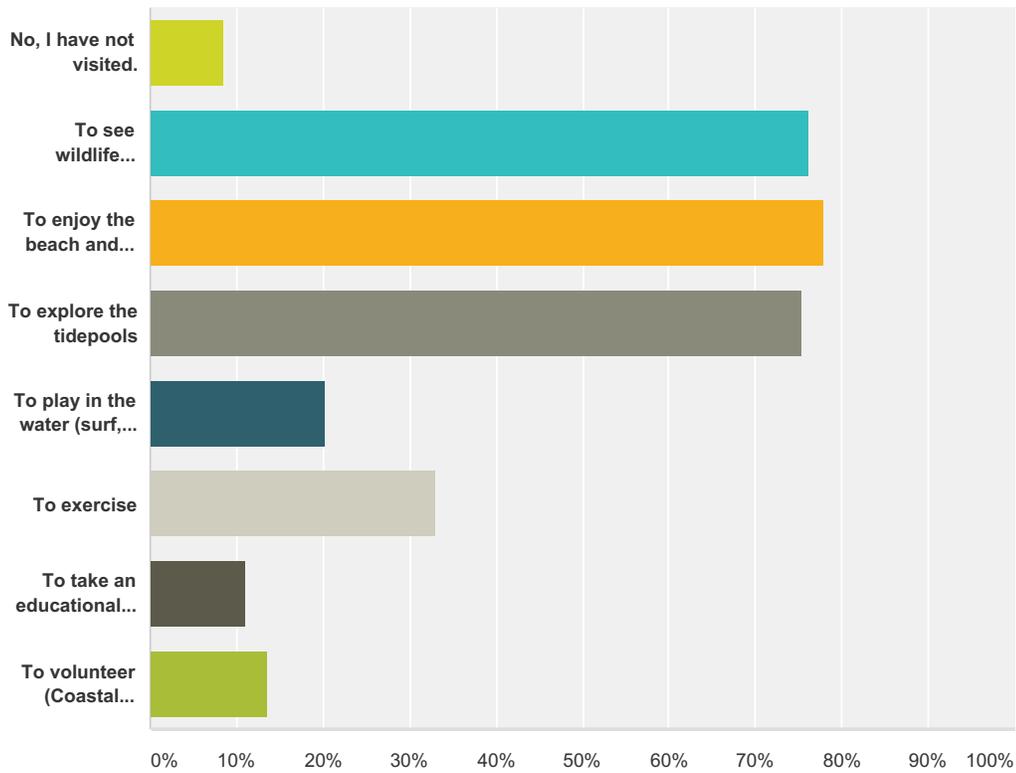
Answer Choices	Responses
Yes	68.60% 83
No	22.31% 27
I'm not sure	9.09% 11
Total	121

Q2 What is your home zip code?

Answered: 122 Skipped: 0

Q3 Do you visit the Fitzgerald Marine Reserve? If so, why? Choose all that apply.

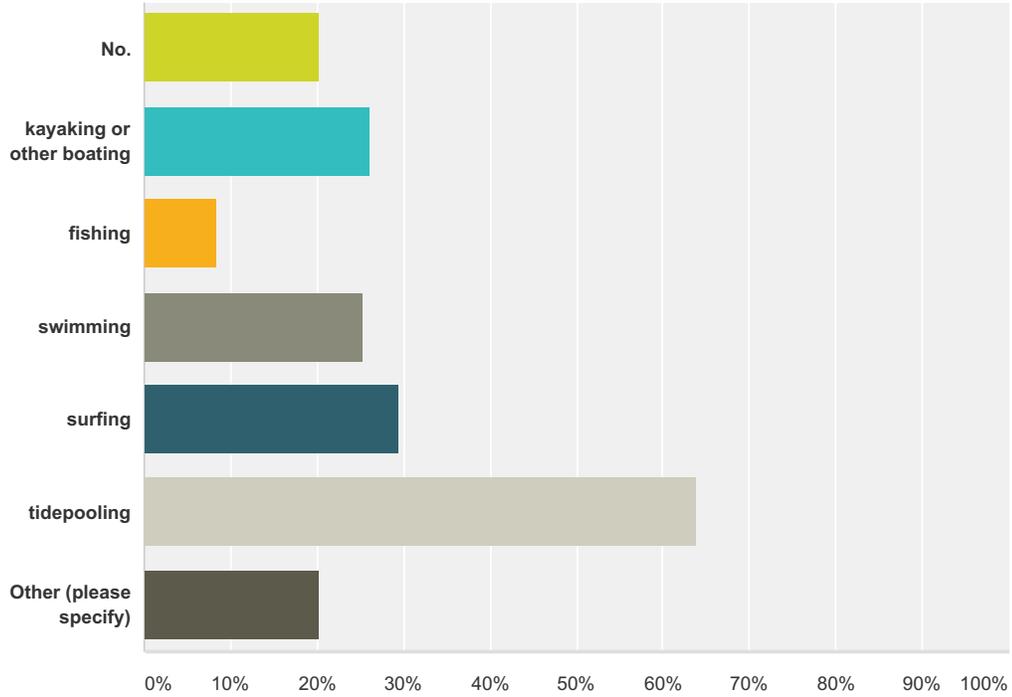
Answered: 118 Skipped: 4



Answer Choices	Responses
No, I have not visited.	8.47% 10
To see wildlife (harbor seals, birds)	76.27% 90
To enjoy the beach and scenery	77.97% 92
To explore the tidepools	75.42% 89
To play in the water (surf, swim, etc)	20.34% 24
To exercise	33.05% 39
To take an educational tour	11.02% 13
To volunteer (Coastal Cleanup Day, etc)	13.56% 16
Total Respondents: 118	

Q4 Do you use the ocean or local creeks in the MidCoast area for any of these water-related activities? Choose all that apply.

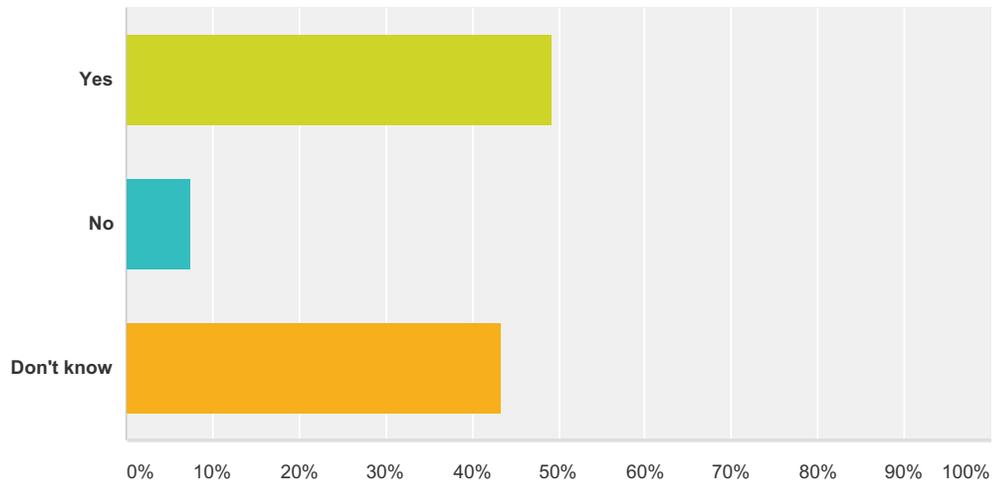
Answered: 119 Skipped: 3



Answer Choices	Responses	Count
No.	20.17%	24
kayaking or other boating	26.05%	31
fishing	8.40%	10
swimming	25.21%	30
surfing	29.41%	35
tidepooling	63.87%	76
Other (please specify)	20.17%	24
Total Respondents: 119		

Q5 Do you think there is a problem with water quality in the Fitzgerald Marine Reserve?

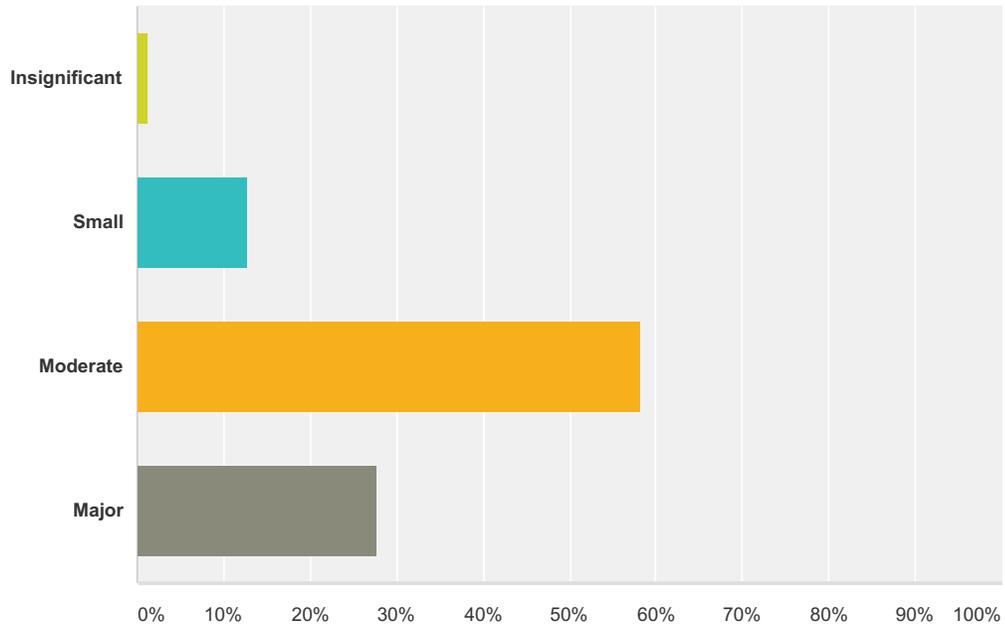
Answered: 120 Skipped: 2



Answer Choices	Responses
Yes	49.17% 59
No	7.50% 9
Don't know	43.33% 52
Total	120

Q6 If yes, how big a problem is it?

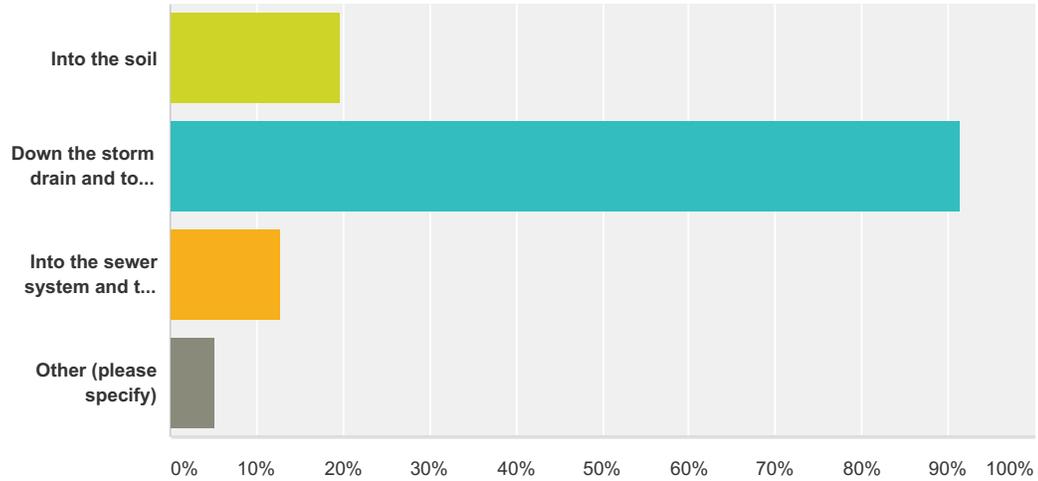
Answered: 79 Skipped: 43



Answer Choices	Responses
Insignificant	1.27% 1
Small	12.66% 10
Moderate	58.23% 46
Major	27.85% 22
Total	79

Q7 When it rains or when water from household activities (car washing, landscape watering) leaves your property, where do you think the water goes?

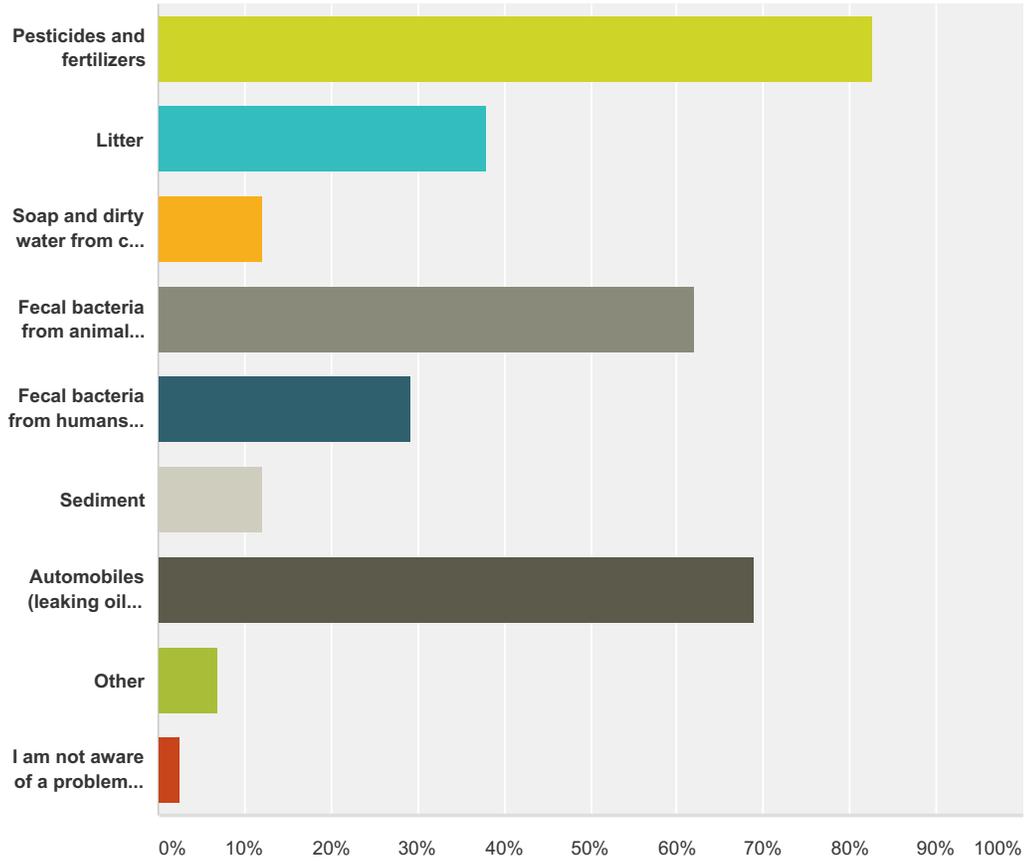
Answered: 117 Skipped: 5



Answer Choices	Responses
Into the soil	19.66% 23
Down the storm drain and to creeks or the ocean, untreated	91.45% 107
Into the sewer system and to a treatment plant	12.82% 15
Other (please specify)	5.13% 6
Total Respondents: 117	

Q8 Any of these can pollute our creeks, beaches, tidepools and ocean if they go down the storm drain. Please choose the 3 you think are the most serious problems for the Fitzgerald Marine Reserve.

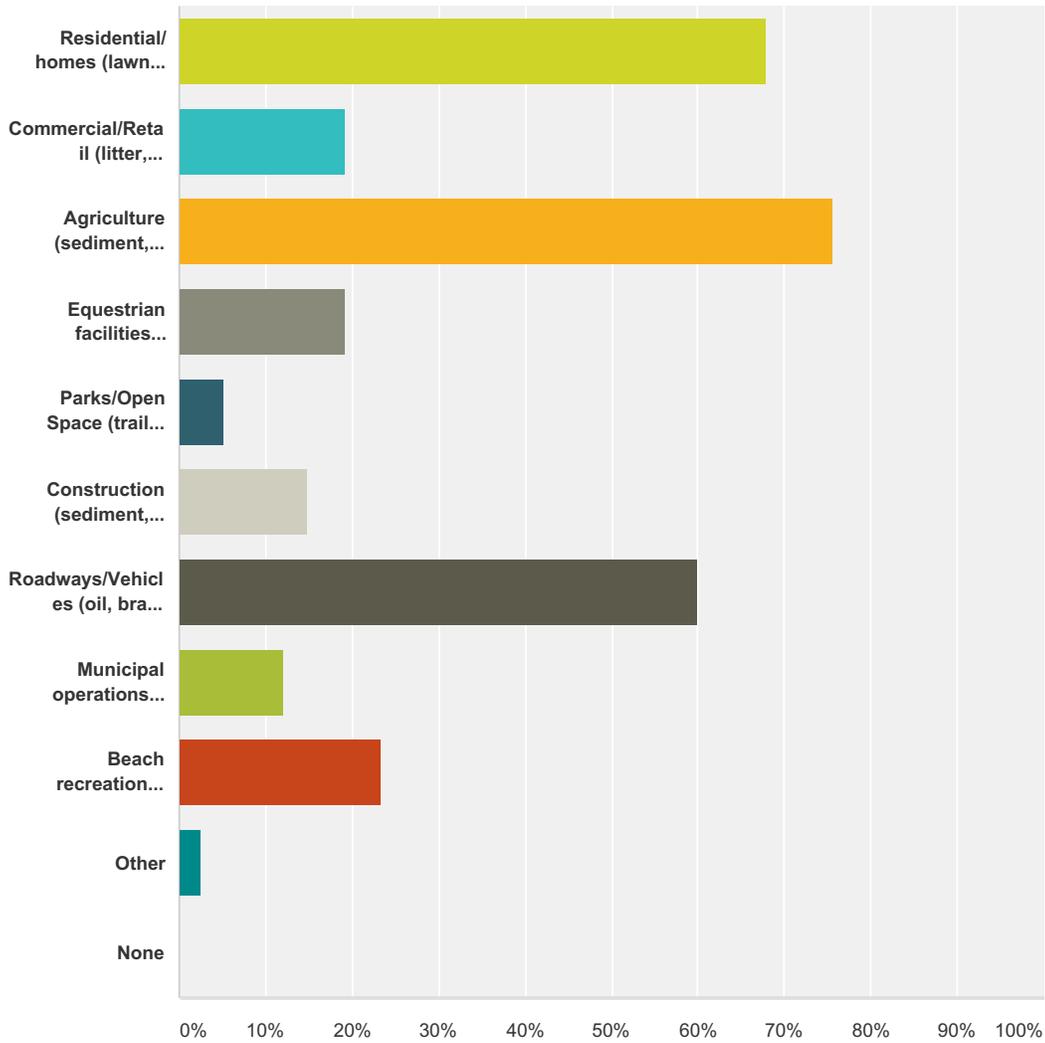
Answered: 116 Skipped: 6



Answer Choices	Responses
Pesticides and fertilizers	82.76% 96
Litter	37.93% 44
Soap and dirty water from car washing	12.07% 14
Fecal bacteria from animal waste (pets, livestock, wildlife)	62.07% 72
Fecal bacteria from humans (sewer or septic system leaks and sewer system overflows)	29.31% 34
Sediment	12.07% 14
Automobiles (leaking oil and other fluids, brake powders, tires)	68.97% 80
Other	6.90% 8
I am not aware of a problem from these sources.	2.59% 3
Total Respondents: 116	

Q9 Water pollution in the Fitzgerald Marine Reserve can come from any of these. Please choose the 3 you feel are the most significant sources.

Answered: 115 Skipped: 7

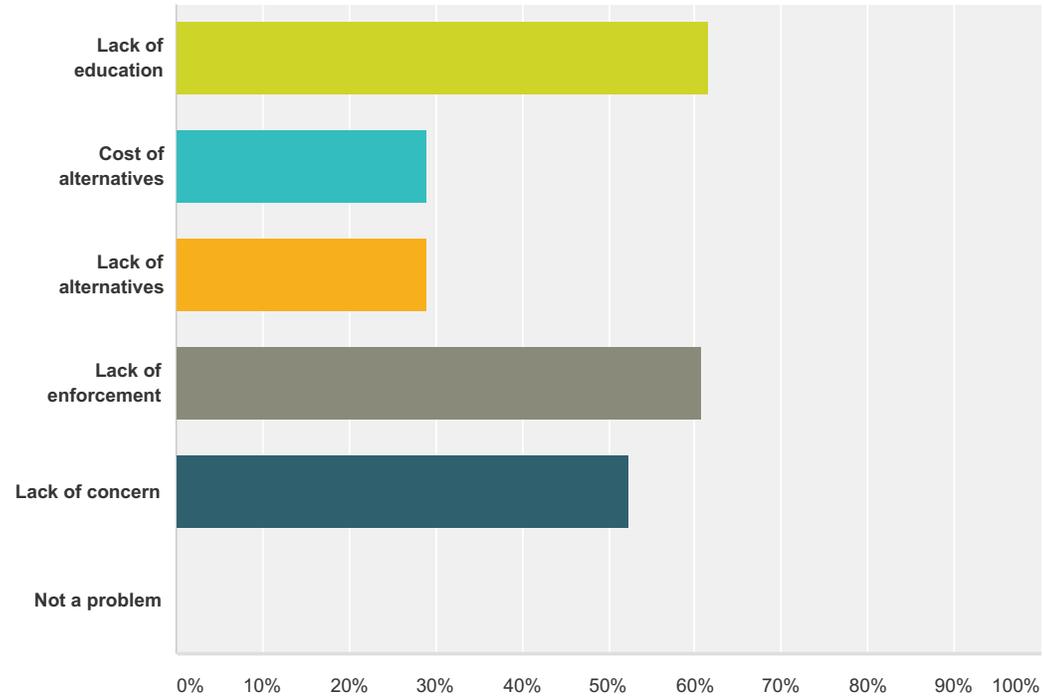


Answer Choices	Responses
Residential/ homes (lawn care chemicals, car washing, litter, household pest control)	67.83% 78
Commercial/Retail (litter, outdoor equipment washing, etc)	19.13% 22
Agriculture (sediment, pesticides and fertilizers from farms and fields)	75.65% 87
Equestrian facilities (horse waste, sediment from trail erosion)	19.13% 22
Parks/Open Space (trails, erosion, litter)	5.22% 6
Construction (sediment, hazardous materials)	14.78% 17
Roadways/Vehicles (oil, brake pad dust, engine exhaust, tire wear)	60.00% 69

Municipal operations (sanitary sewer system and roadway maintenance activities)	12.17%	14
Beach recreation (litter, pet waste)	23.48%	27
Other	2.61%	3
None	0.00%	0
Total Respondents: 115		

Q10 What are the underlying causes of pollution in the Fitzgerald Marine Reserve? Select one or more.

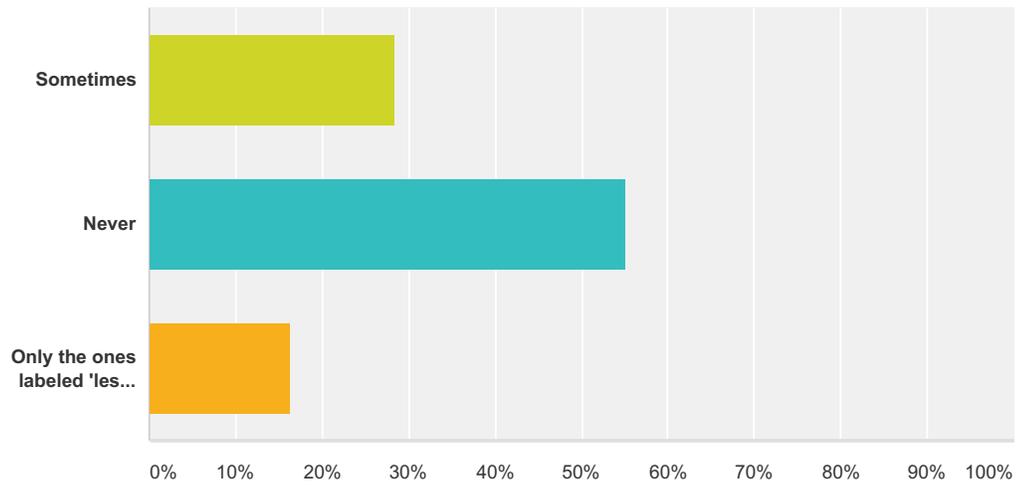
Answered: 107 Skipped: 15



Answer Choices	Responses
Lack of education	61.68% 66
Cost of alternatives	28.97% 31
Lack of alternatives	28.97% 31
Lack of enforcement	60.75% 65
Lack of concern	52.34% 56
Not a problem	0.00% 0
Total Respondents: 107	

Q11 Do you use pesticides/herbicides for landscaping or household pest control?

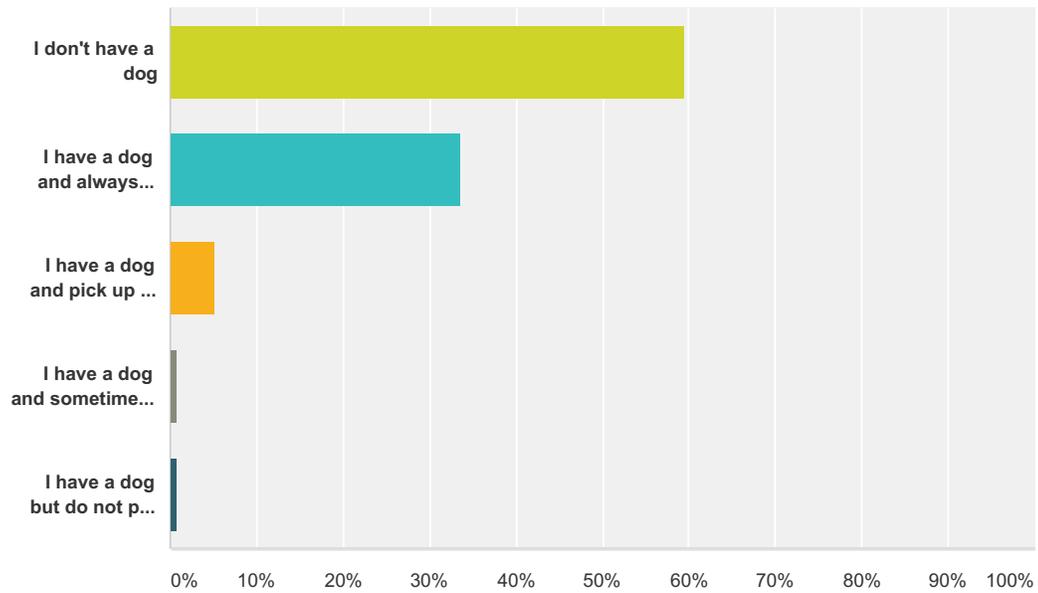
Answered: 116 Skipped: 6



Answer Choices	Responses
Sometimes	28.45% 33
Never	55.17% 64
Only the ones labeled 'less toxic' at the store	16.38% 19
Total	116

Q12 Do you pick-up after your dog when outdoors?

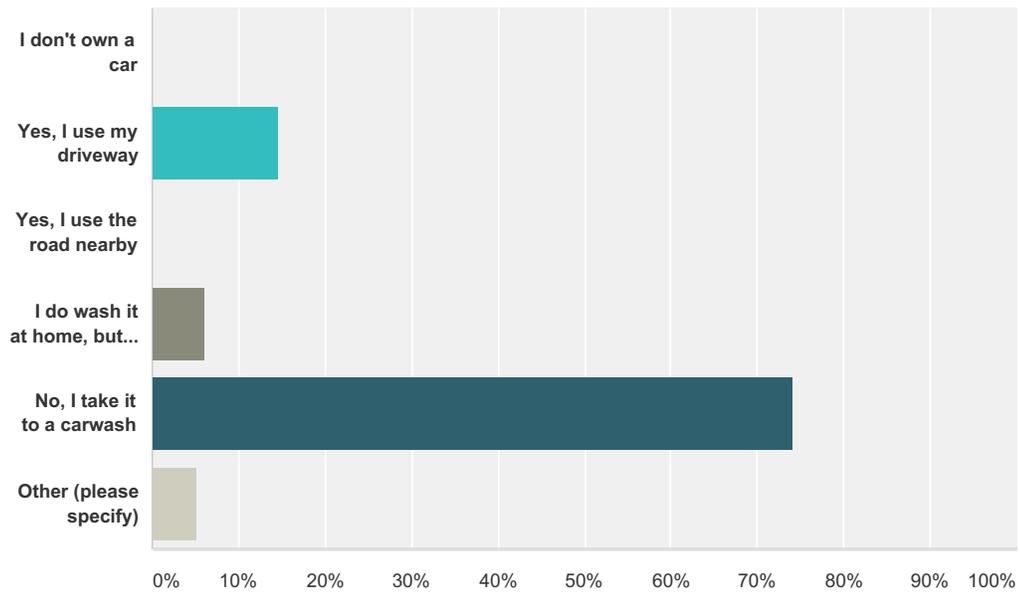
Answered: 116 Skipped: 6



Answer Choices	Responses
I don't have a dog	59.48% 69
I have a dog and always pick-up in my yard and on walks	33.62% 39
I have a dog and pick up on walks	5.17% 6
I have a dog and sometimes pick up after it	0.86% 1
I have a dog but do not pick up after it	0.86% 1
Total	116

Q13 Do you wash your car at home?

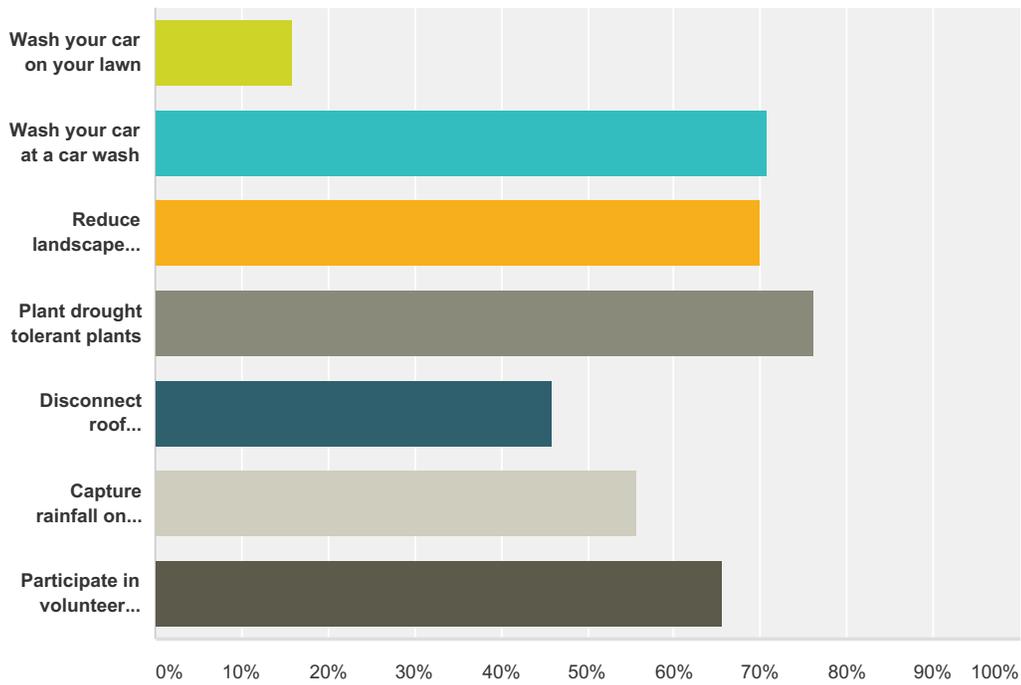
Answered: 116 Skipped: 6



Answer Choices	Responses
I don't own a car	0.00% 0
Yes, I use my driveway	14.66% 17
Yes, I use the road nearby	0.00% 0
I do wash it at home, but always over grass or gravel	6.03% 7
No, I take it to a carwash	74.14% 86
Other (please specify)	5.17% 6
Total	116

Q14 Which would you be willing to do? Choose all that apply.

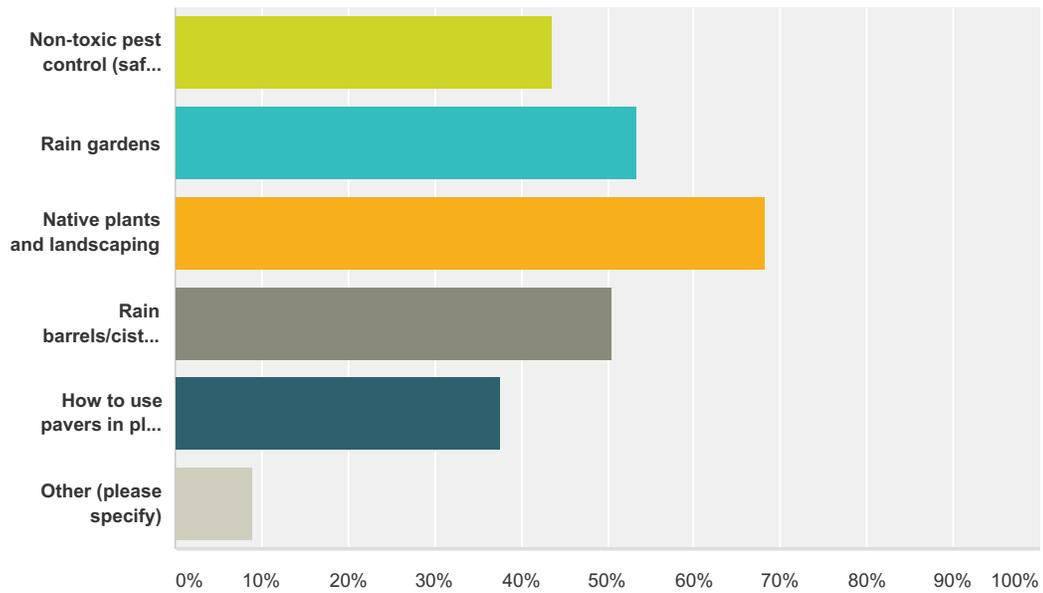
Answered: 113 Skipped: 9



Answer Choices	Responses
Wash your car on your lawn	15.93% 18
Wash your car at a car wash	70.80% 80
Reduce landscape watering	69.91% 79
Plant drought tolerant plants	76.11% 86
Disconnect roof drains/re-route roof runoff to your yard or a rain barrel	46.02% 52
Capture rainfall on your property	55.75% 63
Participate in volunteer cleanup events in your neighborhood	65.49% 74
Total Respondents: 113	

Q15 Which would you like to learn more about? Choose all that apply.

Answered: 101 Skipped: 21



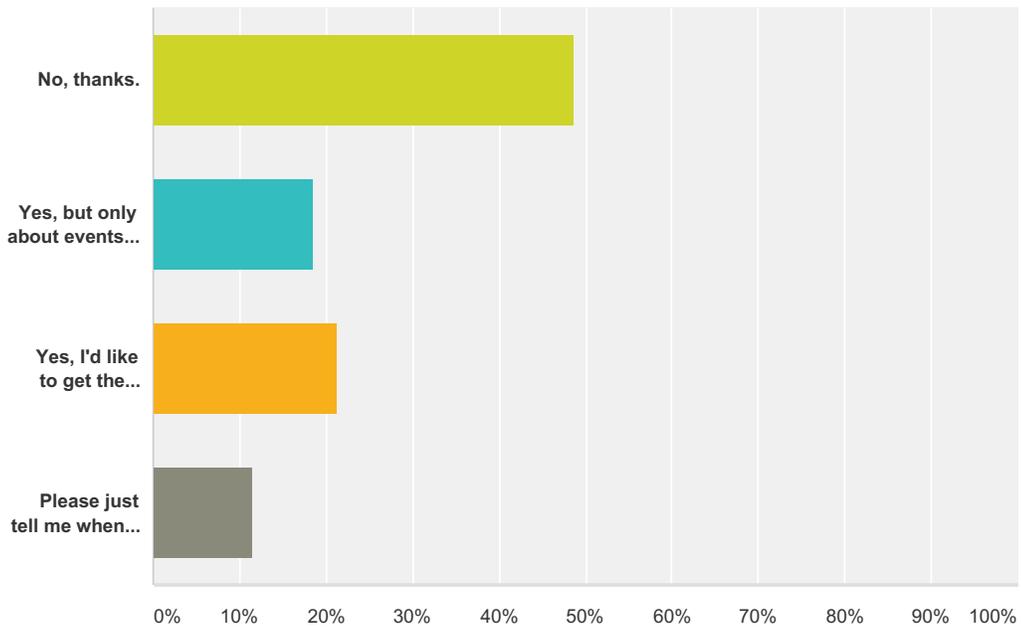
Answer Choices	Responses
Non-toxic pest control (safe for children and pets)	43.56% 44
Rain gardens	53.47% 54
Native plants and landscaping	68.32% 69
Rain barrels/cisterns	50.50% 51
How to use pavers in place of concrete	37.62% 38
Other (please specify)	8.91% 9
Total Respondents: 101	

Q16 What are your suggestions for improving our local stormwater quality?

Answered: 65 Skipped: 57

Q17 Thank you for your help! Would you like to hear from us by e-mail ?

Answered: 113 Skipped: 9



Answer Choices	Responses
No, thanks.	48.67% 55
Yes, but only about events in the MidCoast area (workshops, public meetings, cleanups, etc).	18.58% 21
Yes, I'd like to get the annual Fitzgerald Pollution Reduction Program newsletter.	21.24% 24
Please just tell me when you've updated the website with new information or photos.	11.50% 13
Total	113

Q18 If yes, please give us your email address - we will not share it with other organizations, or use it for any other purpose than to share information related to water quality and the Fitzgerald Marine Reserve.

Answered: 58 Skipped: 64

Fitzgerald Special Edition



PROTECTING THE MARINE RESERVE TOGETHER

SUMMER 2012

LEARN MORE ONLINE:

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- Read about the Reserve's history
- Find links to more great resources online, local groups, and upcoming events

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Partnering to Protect a Special Area

Have you visited the James V. Fitzgerald Marine Reserve (Reserve), and felt the ocean breeze, listened to the surf, or enjoyed looking at the birds, seals, tidepool creatures, and surrounding landscape?

It's an area worth protecting; and several different legal structures are in place to help do that (see page 3 article).

The Reserve includes 370 acres of intertidal and subtidal marine habitat below the high tide line and 32 acres of upland coastal bluffs with elevations up to 100 feet. San Mateo County Parks manages the Reserve area beginning 3 miles south from Point Montara to the south end of Pillar Point and 1,000 feet west into the ocean from the mean high tide line. The Department

of Fish and Game has authority below the mean high tide line.

The State Water Resources Control Board oversees the larger Area of Biological Significance (ASBS) that the Reserve fits within.

Because everyday upstream activities may affect the incredible diversity of life within the ASBS, the County is now

partnering with UC Davis, San Francisco Estuary Institute, and the San Mateo County Resource Conservation District on the Fitzgerald ASBS Pollution Reduction Program. Projects through 2015 will focus on keeping stormwater draining to the Reserve from nearby properties as clean as possible.

We need your help too.



Pollution Prevention Tips

If you visit, live, or work in Moss Beach or Montara, you can help protect the Reserve. How?

By remembering that everything that touches the ground can wash down storm drains to the ocean.

Tips:

- Garden with non-toxic pesticides and fertilizers
- Take your car to a commercial car wash
- Dispose of motor oil, paint and other chemicals properly
- Keep all dirt from construction projects on your property
- Pick up litter
- Pick up after your pet

Visit www.flowstobay.org for more!

Funding for this project has been provided in full or in part through an agreement with the State Water Resources Control Board. The contents of this document do not necessarily reflect the views and policies of the State Water Resources Control Board, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

How is this Special Area Protected?



Different sets of laws and regulations protect the Fitzgerald Marine Reserve and may affect you even when you aren't at the beach.

On the Shoreline

- Only visit the Reserve between sunrise and sunset
- Don't camp, set fires, or smoke
- No dogs or pets on the beach

- No collecting! Leave pails and nets at home, and shells and other keepsakes on the beach.
- No fishing
- Don't disturb plants or animals
- Don't turn over rocks— the creatures underneath are delicate
- Walk around tidepools, not through them

- Keep 300 feet from harbor seals
- Leave no trace behind

In Your Neighborhood

If you live upstream from the Reserve, there are steps you can take to make sure that rain, landscape irrigation, or car washing from your property does not impact the Reserve.

Visit www.flowstobay.org or www.smchealth.org/asbs for more!

Take a quick survey about the Reserve and enter to win prizes!

www.smchealth.org/asbs

Fitzgerald Pollution Reduction Program

Grant funding for this program is being provided by the State Water Resources Control Board. Three projects have already begun: stormwater management pilots, a storm drain inventory, and microbial source tracking study.

What Filters Best?

A variety of best management practices (BMPs) for stormwater are being installed and tested at ten locations near the Reserve. Vegetated swales and water filter devices are in place now, with a green parking lot makeover planned at

the Reserve.

Which Storm Drains?

A Storm Drain Inventory and Assessment was recently conducted by BKF Engineers, a local engineering firm. The study involved detailed GPS/GIS mapping and hydraulic modeling of the County storm drain system.

The goal of the study was to identify priority locations within the Reserve and ASBS watershed for installation of storm water filtration BMPs to remove pollutants from storm water and to identify

storm drain locations that are prone to flooding. The report was completed in May 2012 and will be used to help the County select BMP locations for the second phase of the grant.

What's the Source?

For the Microbial Source Tracking (MST) study, researchers from UC Davis will collect water samples from Martini, Kanoff, Montara, Dean/Sunshine Valley, and San Vicente Creeks. Genetic analysis will help to identify potential sources of fecal contamination (human, dog, bird, cow, or horse).



What Do All those Letters Stand For?

The James V. Fitzgerald Marine Reserve is an ASBS, part of an MPA, and part of a MS too! So?

ASBS stands for **Area of Special Biological Significance**. There are 34 ocean areas along the California coastline designated as an ASBS, which are monitored and maintained for water quality by the [State Water Resources Control Board](#). ASBS cover much of the length of California's coastal waters. They support an unusual variety of aquatic life, and often host unique

individual species. ASBS are basic building blocks for a sustainable, resilient coastal environment and economy.

MPA stands for **Marine Protected Area**. California maintains three kinds of MPAs: state marine reserves, state marine parks and state marine conservation areas. They are designated specifically to protect aquatic life, and often are associated with ASBS. MPAs are designated by the [California Department of Fish & Game](#) and the [California Department of Parks and Recreation](#).

Marine Sanctuaries (MS) are federally designated areas similar to national parks. They often cover vast areas and offer another layer of special protection for the aquatic life and water within their boundaries. They are managed by the [National Oceanic and Atmospheric Administration \(NOAA\)](#). There are four National Marine Sanctuaries off the coast of California. They often are associated with ASBS.

For the full list of native species used in the swales and more photos of all four sites, visit www.smchealth.org/asbs

Vegetated Swales - Beauty in Action

Problem: when water runs off of streets, parking lots and sidewalks quickly, it carries all sorts of pollutants to the nearby creeks and ocean with it, and can cause erosion as well.

Solution? Create a shallow ditch filled with native plants, called a vegetated swale. The swale will slow down and partially absorb the flow of stormwater, and remove pollutants before they reach the open waters nearby.

As part of the Fitzgerald ASBS Pollution Reduction Program, the County is testing different ways of constructing vegetated swales at four locations in Montara and Moss Beach.

Ocean Boulevard

The County contracted with Blue Sky Designs to design and install a vegetated swale. In the fall of 2011, gravel, dirt, and non-native plants were replaced with native

Before



After

grass sod.

By this spring, the swale was lush and green, blending in beautifully and doing its work as a filter.

Juliana Avenue

The County contracted with Go Native to design and install a swale using an under drain system, permeable pavers, and a mix of native plants including grasses and wetland species.



Before



During re-construction

At work on a rainy March day

Kids' Corner

Spotlight on Harbor Seals

Word Search

H	A	U	L	O	U	T	Z	A	W
B	R	O	T	J	H	U	E	X	A
M	P	I	M	V	C	F	V	K	T
A	N	Q	S	E	A	L	G	W	E
M	H	X	W	B	L	I	T	S	R
M	Y	P	I	U	D	P	U	P	I
A	O	Z	M	G	Y	P	T	O	L
L	F	O	R	A	G	E	F	T	Q
C	E	S	D	N	J	R	K	S	X
S	A	L	M	O	N	W	R	F	M



Seals catching some rays

FUN FACTS

How big are they?

From 4 to 6 feet long, and up to 310 pounds

What do they eat?

Rockfish, cod, herring, flounder, and salmon

Where do they sleep?

They can sleep under water (coming up for air every 30 minutes); but they like to doze in safe spots on land, called haulouts.

Can you find these?

Seal, flipper, pup, forage, water, haulout, salmon, swim, spots, mammal



Quick Quiz

What should I do if I find a seal pup alone at the Fitzgerald Marine Reserve, or on any beach?

- A. Take it home
- B. Sing it a song
- C. Keep your distance
- D. Take a photo

For the right answer, check the bottom of this page

2012 Coastside Events

Half Moon Bay July 4th Parade

Dress as your favorite tidepool creature! with [Friends of Fitzgerald Reserve](#)

Coastal Cleanup Day Sept 15

Pitch in to pick up litter at Mirada Surf or another Coastside beach.

Visit [flowstobay.org](#) for full details

Pumpkin Festival Parade Oct 13

Dress as your favorite tidepool creature! with [Friends of Fitzgerald Reserve](#)

Stewardship Work Parties

First Saturdays and third Wednesdays, May through August.

Organized by [Coastside Land Trust](#)



Rangers unlock tidepool secrets

Workshop August 25

Protecting Coastal Watersheds

(Residential low impact development — LID)

Cypress Meadows 10 am - 1pm

343 Cypress Avenue, Moss Beach

Five focus areas:

1. Bioswales and Rain Gardens
2. Pervious Pavements and Permeable Pavers
3. Irrigation and Pesticide Use
4. Rainwater Harvesting and Gray Water Reuse
5. LID Features for Small Projects and MRP Requirements

Check online for additional events in your area
[www.smchealth.org/asbs](#)

Quiz Answer: C - stay back! Its mother is off finding food; and it needs to rest.

Protecting the Marine Reserve Together



Get the Scoop on Pet Poop



I would never leave a mess on the beach. I trained my owner right.

You scoop up after your dog on walks, right?

Excellent!

Don't forget to scoop up after pets in your yard, too.



Clean up on the trail, in the barn, and in the paddock. I have a reputation to maintain.

Why?

- ◆ Pet waste is like raw sewage.
- ◆ It contains fecal coliform bacteria and other disease-causing organisms such as salmonella, roundworms and giardia.
- ◆ When it rains, bacteria and organisms in pet waste are carried by runoff to storm drains and creeks that flow to the beach and ocean.
- ◆ High quantities of these bacteria and organisms contaminate water used by swimmers, surfers, boaters, and sea life.
- ◆ Testing of Coastside creeks and beaches during storms has indicated high levels of bacteria.



Me? A threat to harbor seals? OK, I'll use the litterbox.



Help keep the Coastside safe and clean for everyone to enjoy!

Clean Water. Healthy Community. It's a Team Effort.



Together, we've banned plastic bags and polystyrene, installed over 800 trash capture devices in storm drains, and cleaned more than 30 hotspots. 1,000's of friends and neighbors joined in cleanups at our beaches, parks, and neighborhoods, collecting over 30,000 lbs of trash in 2012 alone!

Together, our efforts made a significant dent in the amount of trash on our streets, in our communities and in the environment, but more work is needed. Join us in this Team Effort!



HELP

STOP

LITTER

FlowsToBay.org/TeamEffort

A Program of the City/County
Association of Governments
of San Mateo County (C/CAG).



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SUMMER 2013

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What's in the Water?

During the 2012-2013 rainy season, rainwater runoff from properties and streets in Montara and Moss Beach was sampled to determine the quality of stormwater draining to the Fitzgerald Marine Reserve (Reserve) and to assess the effectiveness of Best Management Practices (BMPs) designed to remove pollutants from the stormwater runoff.

This effort is part of a larger project called the *James V. Fitzgerald Area of Special Biological Significance Pollution Reduction Program* (Fitzgerald Project) that is led by the County of San Mateo, in collaboration with the San Mateo County Resource Conservation District (RCD) and the San Francisco Estuary Institute (SFEI).

A total of 82 samples were collected from six pilot BMP locations in Montara and Moss Beach where roadside ditches have been converted to vegetated swales, and where storm drain

filtration devices have been installed. Based on water quality testing results prior to treatment, pollutants of concern include metals (copper, lead, nickel, zinc), polycyclic aromatic hydrocarbons (PAHs), permethrin pesticides, sediment, and fecal indicator bacteria (FIB).

Where do these pollutants come from?

Many of these pollutants are related to vehicles and combustion. For example, copper from brake pads and zinc from tire wear can end up in stormwater. PAHs from fuel burning (i.e., engine combustion, wood), diesel particulates, fluid leaks from cars, and the breakdown of the roadway surfaces can also end up in the storm drain system.

Elevated levels of FIB, such as *E. coli*, a bacteria found in feces from humans, pets, and



wildlife, can leak from septic lines or wash off from yards.

Other pollutants such as sediment can result from erosion due to bare soil that is exposed to rainfall during the winter (i.e., from improper grading & construction practices, trails, rural roads). Contaminants can also come from building materials (i.e., roofs and gutters) and household products used in the yard.

Read more in this issue to find out how you can help and what the County is doing to reduce stormwater pollution.

Antsy? Get Better Pest Control

Water quality monitoring results revealed elevated levels of permethrin in stormwater at several of the sampled BMP locations. Permethrin is a type of pyrethroid pesticide that is found in many of the leading bug sprays sold at nursery or hardware stores for control of common pests such as ants,

cockroaches, grubs, termites, and wasps. These products can be highly toxic to aquatic organisms, cats, and beneficial insects that naturally keep pest populations under control.

Fortunately, there are effective alternatives to these chemicals and products. For ant control, learn more at:



Common pest control products

www.GotAntsGetSerious.org

For other pests, visit:

www.flowstobay.org/pestcontrol

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Fitzgerald 100+ Years Ago: Historical Ecology

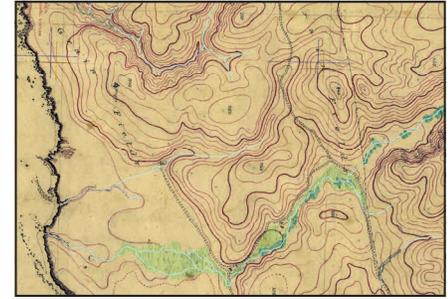
What if we could see the Fitzgerald Marine Reserve (Reserve) as it existed a decade ago? A century ago?

Understanding the historical landscape and how it has changed over time can help address many of the challenges associated with managing and planning for the future of local watersheds. The study of how the system functioned often reveals ways to restore native habitats within our developed landscape to create a healthy

ecosystem with both wildlife and recreational benefits.

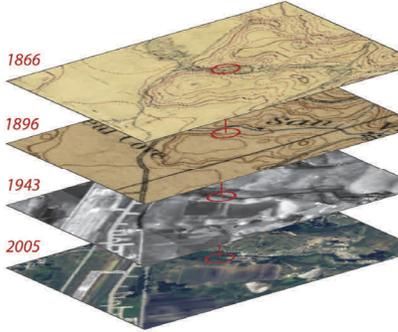
Because local scientists have been visiting the Reserve for over 100 years, we have good documentation of changes since 1911. And other sources let us look back even further, to times when only native inhabitants used the Reserve area resources.

Visit the San Francisco Estuary Institute's project online at



San Vicente creek in 1866. Freshwater marsh (light green) merges into willow riparian forest (dark green) along the creek.

www.sfei.org/node/1368 and learn how their research can be used to set priorities for the Reserve area's preservation and restoration.



Photos courtesy of [San Francisco Estuary Institute](http://SanFranciscoEstuaryInstitute.org)

www.smchealth.org/asbs

Updates: Pollution Reduction Program

Since the pilot phase of the Fitzgerald Project began in June 2011, the County has installed four vegetated swales and three storm drain filtration devices to filter out pollutants in roadside drainages before they reach the Reserve.

Two vegetated swale designs were implemented. One design involved the use of a native grass sod for biofiltration. The other design involved an under-drain system coupled with permeable pavers, rock weirs, and a mixed palette of native plants including grasses and wetland species.

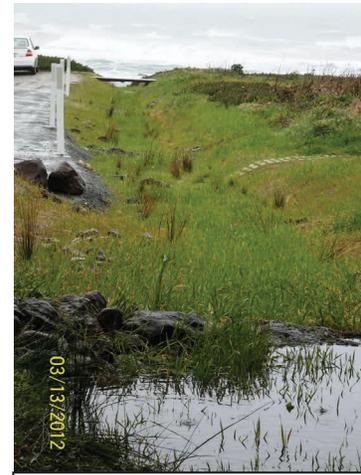
The filtration devices included two designs, a box unit filled with granular filter material and a catch basin replacement vault with filtering cartridges. For more photos of these BMPs, visit www.smchealth.org/asbs

Water quality monitoring by SFEI showed that the vegetated swales reduced pollutant levels

by 30% to 100%, depending on the type of pollutant and site characteristics. The filtration devices were also effective at removing pollutants but were generally more costly due to the need for increased maintenance such as sediment removal and filter replacement.

In August 2012, the County hosted a residential low impact development (LID) workshop. Topics included bioswales, rain gardens, pervious pavements and permeable pavers, irrigation and pesticide use, and rainwater harvesting.

The County is now preparing for Phase 2 of the Fitzgerald Project where additional roadside ditches in Montara and Moss Beach will be converted to vegetated swales designed to help remove pollutants from stormwater runoff. County planning efforts are continuing to retrofit the Reserve parking lot in order to treat runoff before it



Vegetated swale, Moss Beach

enters San Vicente Creek and the Reserve.

Phase 2 of the project will also involve work by the RCD on private and open space properties throughout the ASBS watershed (Read more on Page 3).

Visit www.smchealth.org/asbs for a list of Phase 2 sites and to view presentations from the LID workshop.



Flume filter box, 14th Street, Montara

What's the Source of that Bacteria?

Have you ever noticed a sign at the Fitzgerald Marine Reserve near San Vicente Creek warning visitors that creek water and beaches are contaminated and may not be suitable for swimming or other contact recreation?

Did you know that San Vicente Creek and the Reserve are listed by the Regional Water Quality Control Board as impaired due to coliform bacteria?

With the help of scientists from UC Davis and SFEI, the County is looking into the sources of the bacteria. Genetic analysis was performed to determine the prevalence of a universal *Bacteroidales* genetic marker and host-specific genetic markers from human-, bovine-, dog-, and horse-associated *Bacteroidales*.

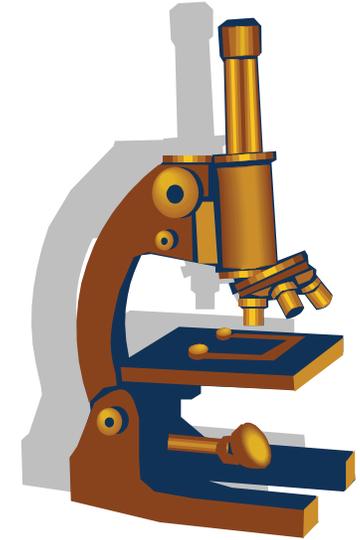
This evolving watershed management tool, called Microbial Source Tracking (MST), is used to help determine potential sources of fecal contamination in our waterways. MST based on genetic analysis of *Bacteroidales* (a specific type of fecal bacteria) is considered a state-of-the-art methodology, and UC Davis is at the fore-

front in the development and use of it.

For this study, UC Davis scientists collected a total of 58 samples (water, sediment, and biofilm on plants) from Martini, Kanoff, Montara, Dean/Sunshine Valley, and San Vicente Creeks just upstream of the confluence with the Pacific Ocean. SFEI researchers collected additional samples at multiple sites within the same five watersheds and tested them for the standard fecal indicator bacteria (FIB) – coliform bacteria, *E. coli*, and *Enterococcus*.

The MST results showed that FIB levels were highest during the rainy season. Results also confirmed the presence of fecal contamination in the tested creeks from human, dog, bovine, and horse sources.

Of the four markers that were tested, dog appears to be the most prevalent source during the rainy season. There may be other more significant sources of fecal pollution present that were not characterized as part of this study, such as wildlife or other domestic animals, but more research is needed. For the full report, visit www.smchealth.org/asbs.



What You Can Do to Help

- Pick up after your pets. Pet feces left in the backyard during rain can lead to increased fecal bacteria counts in our creeks and ocean.
- Make sure your sewer laterals and septic systems are working properly and do not have cracks or leaks.

Free Technical Assistance to Homeowners

The San Mateo County Resource Conservation District (RCD) works with landowners to achieve conservation through voluntary actions. The RCD provides free and confidential technical assistance to private and public landowners and currently has a grant to help fund improvements that benefit the Fitzgerald ASBS watershed.

RCD CAN:

- Help residents interested in landscaping with native plants or harvesting rainwater
- Help residents with manure management
- Raise awareness about the importance of cleaning up dog waste and help organize clean-ups
- Help residents improve drainage to minimize runoff of water contaminated by common household pollutants (e.g. pet waste, pesticides, metals)
- Help landowners improve rural roads or trails so there is less sediment or pollutant runoff entering the Fitzgerald ASBS

If you live in the Fitzgerald ASBS watershed (nearly all of Moss Beach and Montara) and are interested in talking with the RCD about potential projects on your property, please contact Irina Kogan by email: irina@sanmateorcd.org or phone 650-712-7765 x107.



How Does Your Garden Score?

- ◆ Building healthy soil
- ◆ Reducing waste in the garden
- ◆ Conserving water
- ◆ Creating wildlife habitat (for birds and pollinators)
- ◆ Protecting local watersheds and the ocean
- ◆ Contributing to a healthy community
- ◆ Saving energy

The RCD will provide FREE backyard habitat/garden assessments to homeowners. Some funds will also be available to help implement improvements!

Contact Chelsea Moller by email: Chelsea@sanmateorcd.org or phone 650-712-7765 x105.

Kids' Corner

Spotlight on Tide Pool Critters

Connect the Critter



Draw a line from the name of the tidepool creature to its picture.

Starfish



Sea lemon



Sunburst anemone



Kelp scallop



Ostrich-feather hydroid

Hermit crab



Red barnacles



Harbor seal pup



Quick Quiz

You can protect these tidepools critters by:

- A. Washing your car at the carwash
- B. Always putting litter in the trash can
- C. Cleaning up after your dog
- D. Controlling bugs without pesticides

For the right answer, check the bottom of this page

Find these critters and more online at www.fitzgeraldreserve.org (and thank [Friends of Fitzgerald Reserve](#) for the photos)

2013 Coastside Events

Coastal Cleanup Day Sept 21

Pitch in to pick up litter at Mirada Surf or another Coastside beach.

Visit flowstobay.org for full details

Volunteering at the Reserve

Friends of Fitzgerald trains volunteers to help out at the tidepools. For details,

visit www.fitzgeraldreserve.org

or

Partner with a park ranger to help educate visitors. Visit the County Parks volunteer page for more details.

www.smcgov.org/parks

Coastside Cleanup Days and Educational Events

Organized by Coastside Land Trust

Visit www.coastsidelandtrust.org for details.



First Flush

Late September/ early October

Volunteers sample local storm drains during the first big rain of the winter season.

Contact the RCD for more information and to sign up. (650-712-7765)

Check online for additional events in your area
www.smchealth.org/asbs

Quiz Answer: All of these are good choices for water quality protection.

Fitzgerald Special Edition



PROTECTING THE MARINE RESERVE TOGETHER

SUMMER 2014

LEARN MORE ONLINE:

- See maps of the Reserve, the ASBS, and the pilot projects
- View photos of the Reserve and the incredible sea life there, plus before-during-and-after shots of swale construction
- Read about the Reserve's history
- Find links to more great resources online, local groups, and upcoming events

For all this and more, visit

www.smchealth.org/asbs

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Preventing Pollution at Home

Did you know that there are actions you can take at home to prevent stormwater pollution? Common activities like car washing, yard care, and pest control can result in polluted stormwater, which may impact special areas like the Fitzgerald Marine Reserve. Recent water quality monitoring results in the MidCoast area showed elevated levels of pollutants such as fecal coliform bacteria, permethrin pesticides, and metals like copper, lead, nickel, and zinc. Below are a few ways you can help prevent stormwater pollution.

Go the Extra Yard. Clean water starts in your backyard. Many common insecticides like wasp or ant sprays have harmful ingredients, such as permethrin, which are very toxic in

the aquatic environment. Try using less pesticides and fertilizers, or switch to less toxic products. Even pet waste from backyards impacts stormwater when runoff from these areas enters the storm drains or creeks and increases levels of fecal bacteria. Always clean up after your pets and dispose of the waste in the garbage.

Only Rain in the Storm Drain. Did you know that vehicles are a common source of pollutants? Fluid leaks from your vehicle are carried by rainwater from your driveway into the storm drain. Be sure to inspect for leaks regularly. Copper dust from brake pads accumulates on your wheels, and when it rains, the dust and other pollutants wash off of your car. However, higher



concentrations are released when cars are washed and scrubbed with water under higher pressure. If you wash your car in the driveway, these pollutants and soap wash into the storm drain. Taking your car to a commercial car wash ensures that wash water is captured and treated through the sanitary sewer system.

Please see the Team Effort Insert for more tips, coastside hardware stores that carry less-toxic products, car wash coupon info, and more!

Copper: The Untold Story

Most of us appreciate the natural beauty of copper in the form of jewelry, artwork, and other decorative applications. One of those applications is architecture. It is often used for roofs, flashing, rain gutters, and downspouts because of its beauty and durability.

Copper is naturally occurring in the earth, but high concentrations in water can be toxic to aquatic life. When used for architectural features, it is often patinated to produce a desired color. Patination involves acids that, when applied



and rinsed, can end up in the storm drain and increase copper levels in water. While copper does not rust, it does corrode, creating by-products such as copper oxide, sulfides, and copper dust that are released as rain water passes over the surface of the architectural features.

The best way to prevent

copper pollution is to choose another material for your project. If you must use copper, try these best management practices to prevent pollution: 1) purchase copper materials that have been patinated at the factory, 2) if patinating or washing onsite, collect rinse water and off-haul for proper disposal, or direct rinse water to landscaping and block off nearby storm drains, or 3) apply a coating to prevent corrosion.

Please see the Team Effort Insert for more ways to prevent copper pollution.

RCD Projects: Keeping the LID On

When rain falls in an undeveloped area, the ground will soak up much of it. Runoff from saturated earth flows downhill in the form of a creek or stream, leading to other water bodies such as lakes, bays, and oceans. When water soaks into the ground, it is naturally filtered by the soil, and pollutants generally break down in the process.

When rain falls onto the hard surfaces of streets, driveways, patios, and rooftops, it picks up pollutants in its path such as backyard pet waste, motor oil from leaking vehicles, copper from vehicle brakes, household and garden pesticides and herbicides, metals from roofing and gutter materials, and street litter. Runoff from these hardscapes flows to roadside gutters and storm drains. The storm drains collect this polluted rainwater and carry it directly into our creeks, oceans, and the Fitzgerald Area of Special Biological Significance (ASBS), where it can negatively impact aquatic life and water quality. It can also lead to erosion, localized flooding, reduced groundwater levels, and local beach closures. What can be done to prevent this?

Low Impact Development (LID) is a technique now being used for new and redevelopment projects that utilizes nature to manage stormwater and prevent pollution at the source. LID ranges from small scale backyard projects to larger municipal development and retrofit projects where streets are redesigned to capture and naturally treat stormwater. Examples of LID techniques include using permeable pavements and paving stones, rain gardens, rain barrels, grassy swales, and native and drought tolerant plants.

There are two primary LID treatment approaches. The first involves capturing all of the stormwater on-site and allowing for evaporation, infiltration, and/or rainwater harvesting. The second approach involves treatment where stormwater is slowed and filtered by plants and bio filtration

soils to remove pollutants before some or all of the water enters the storm drain system. This approach often involves the use of an under drain system beneath the soils to deliver the treated water to the storm drain system.

You can implement LID at home without having to rebuild or remodel your house! Installing a rain barrel is



a good example. These are specially designed barrels placed underneath the downspouts of your house to capture rainwater from your roof. A hose can be attached so you can use it to water your yard! Another example of LID is a rain garden – a planted area of your yard where water either accumulates or slowly passes on its



way to the storm drain. Rain gardens allow the water to collect and percolate through special bio filtration soils that help filter out pollutants. And of course, if you are building a new house or remodeling an existing one, consider LID techniques in the process, such as a new driveway or walkways with paving stones that allow

water to soak into the ground. Some of these techniques are now being required by planning and building departments, so it is good to learn about them before developing your plans.

As part of the ASBS Pollution Reduction Program, San Mateo County Resource Conservation District (RCD) and Natural Resources Conservation Service (NRCS) staff visited residents in Montara and Moss Beach over the past year to provide free technical assistance and make recommendations for LID practices on each property. The goal is to achieve sustainability and improve water quality. On-site technical assistance involved landowners and RCD/NRCS staff identifying concerns such as erosion, poor drainage, or the presence of pollutants, and landowners being provided with customized strategies to address those issues.

From these site assessments and recommendations, properties were selected to have engineered designs developed. The designs for each property were recently completed and include LID combinations of rainwater catchment systems, vegetated swales, rain gardens, replacing driveways with permeable pavement, and strategies to direct flow to vegetated areas. Construction and planting of these LID projects is planned for early Fall 2014. These sites will demonstrate how private landowners can improve water quality in the ASBS watershed.

For more information on LID and related resources, see the following link: www.sanmateorcd.org/LID.html. If you are interested in implementing LID strategies, helping conserve water, and protecting water quality in your watershed, contact Brittani Bohle with the RCD at Brittani@sanmateorcd.org or at 650-712-7765 ext. 104. The RCD provides ongoing, free and confidential technical assistance for public and private landowners to achieve conservation.

See the Team Effort insert for more information, and help keep the LID on water pollution!

Updates: Pollution Reduction Program



Phase 2 of the Fitzgerald ASBS Pollution Reduction Program is underway! The grant-funded project began in 2011 with the County's installation and testing of pilot storm drain best management practices including roadside vegetated swales and storm drain filtration devices throughout Montara and Moss Beach. Based on the water quality monitoring results, the vegetated swales were effective at reducing pollutants, and they provide a greener, more natural approach to stormwater treatment. So, with financial assistance from the State Water Resources Control Board, the County is

installing more. Three roadside vegetated swales were installed in 2013, and eleven more will be installed this summer and fall. Green stormwater treat-



ment features will also be constructed at Fitzgerald Marine Reserve parking lot and along Carlos Street in Moss Beach. Visit <http://smchealth.org/asbs> for more information and updates on the Fitzgerald ASBS Pollution Reduction Program.



Top left: A vegetated swale on Wienke Way in Moss Beach, before the project. Center: Workers installing vegetated swale. Above: The completed project.

2014 Coastside Events

Ongoing watershed hikes

www.openspace.org

Pacifica Beach Cleanups

www.pacificbeachcoalition.org

First Flush

Late September/ early October

Volunteers sample local storm drains during the first big rain of the winter season.

Contact the RCD for more information and to sign up. (650)712-7765

Coastal Cleanup Day **Sept 20**

Pitch in to pick up litter at Mirada Surf or another Coastside beach.

Visit www.flowstobay.org/ccd for full details

Coastside Cleanup Days and Educational Events

Organized by Coastside Land Trust

Visit www.coastsidelandtrust.org for details.



Volunteering at the Reserve

Friends of Fitzgerald trains volunteers to help out at the tide pools. For details,

visit www.fitzgeraldreserve.org

or

Partner with a park ranger to help educate visitors. Visit the County Parks volunteer page for more details.

www.parks.smcgov.org

Kids' Corner

Banana Slugs invade local school!

The 21st annual Oceans Week titled, "Tidepools: Marine Magic in Our Own Back Yard" took place at Farallone View Elementary School in Montara during the week of May 19th. The event was sponsored by the Friends of Farallone View Parent Teacher Organization who partnered with the County of San Mateo's Parks Department and the Department of Public Works, the San Mateo Countywide Water Pollution Prevention Program, and other local organizations to design activities to teach students about tidal ecosystems and pollution prevention.

The event kicked off with an assembly entitled "We All Live Downstream" presented by the Banana Slug String Band. The assembly was an interactive performance involving music, singing, and dancing on the topics of storm drains, recycling, and keeping water clean. The band has performed in schools all over the County for the last several years and was thrilled to be part of Oceans Week for a second time. Check out the band and their songs at www.bananaslugstringband.com.

Fitzgerald Marine Reserve Park Ranger Cala helped lead a school-wide assembly where his video "A Universe in a Tide Pool" was screened, and he shared his passion for tidal creatures.

Log on and check out the video at: parks.smcgov.org/fitzgerald-marine-reserve

Students also participated in the school's "Be Seen Keepin' It Clean Event." As part of a homework assignment, approximately 220 students, with the help of family members, collected about 250 bags of litter from neighborhoods, beaches, creeks, and parks from Half Moon Bay to Montara. As a result, students protected ecosystems by preventing litter from entering the local waterways and ocean. The San Mateo County Office of Education Safe Routes to Schools Program and the County of San Mateo RecycleWorks Program provided support and incentives to students for participating in this Earth-friendly event. In addition, Recology of the Coast provided the school with a recycling truck demonstration for the transitional kindergarten, kindergarten, and first grade classes.

Other events included tide pool field trips and a tide pool learning lab. On the last day of tide pooling, students observed THREE octopuses! During the lab, students made a pledge to "Protect the Marine Reserve Together" by taking steps to prevent pollution such as always cleaning up after their pets and never littering. Visit

smchealth.org/asbs to take the pledge too. The Department of Public Works also sponsored a tide pool drawing contest. All of the artwork was great! See below for a few of our favorites.

Educating the next generation about pollution prevention is critical to the success of future efforts. *Keep up the good work Farallone View Elementary!*

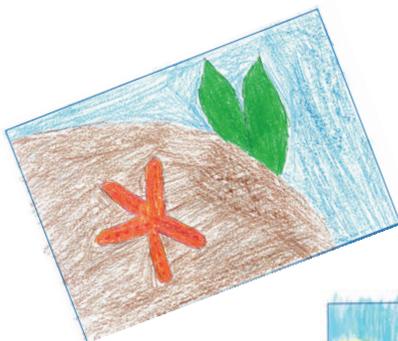


The Banana Slug String Band performs "We All Live Upstream" at a local school

Want to learn about the Fitzgerald Marine Reserve?

Visit:

<http://parks.smcgov.org/fitzgerald-marine-reserve>



Samples from the Tide pool Drawing Contest!



Funding for this project has been provided in full or in part through an agreement with the State Water Resources Control Board. The contents of this document do not necessarily reflect the views and policies of the State Water Resources Control Board, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

Water quality affects everyone – humans, pets, livestock, and wildlife. That’s why it’s so important for everyone to make an effort to maintain good water quality. Federal, state, and local government agencies have regulations in place to protect water quality, as well as programs and grants to educate and encourage people to use best practices at home and work. Government programs also fund municipal improvements geared toward stormwater management, but government can only do so much. It is up to residents and businesses to help the effort by using best practices daily to prevent water pollution.

What’s the Problem with Runoff?

Many people don’t realize that when it rains, polluted stormwater flows into storm drains and directly to the creeks and ocean without filtering or treatment. Many things we do can negatively impact the cleanliness of stormwater runoff, including common activities you might not expect. This is why stormwater is a significant ongoing source of pollution in our water bodies.



**Clean Water.
Healthy Community.
It's a Team Effort.**



and parking lots. These are important opportunities for managing

stormwater because pavement constitutes as much as 70 percent of the impervious surfaces in an urban area that prevent water from soaking into the soil. Innovative use of these design approaches can enhance pedestrian and bicycle access and



Infrastructure Solutions

Local county and city governments are implementing new techniques in urban planning to capture and treat stormwater runoff. These techniques use natural processes to filter polluted water and allow it to recharge groundwater. Examples of this can be seen in the “San Mateo County Sustainable Green Streets and Parking Lots Design Guidebook,” in which rain gardens and bio retention areas are used to manage stormwater runoff from streets



What You Can Do

There are opportunities every day to take action when it comes to protecting water quality, from cleaning up pet waste, to washing the car more responsibly (see back). It may not seem like much, but the more people who make the effort, the more the pollution will be prevented at the source. This helps save government funds for other improvements, and results in a cleaner overall environment. Modeling behavior for your children and making others aware of pollutant sources, water quality problems, and solutions makes a big difference. Use your voting power to approve funding for green initiatives. Use your buying dollar to support products and services that are eco-friendly. Taking action in little ways helps a bigger cause. For more information, or to sign up for the Team Effort e-newsletter, go to www.flowstobay.org or call (650) 372-6200.



safety, calm traffic, add urban green space and wildlife habitat, enhance neighborhood livability, increase community and property values, help deepen connections to the natural environment, and control localized flooding. Green street and parking lot projects have been constructed in Brisbane, Burlingame, Daly City, San Bruno, San Carlos, Montara, Moss Beach, and San Mateo, and more are in the works.

Protecting the Marine Reserve Together

Where to Find

Want to learn more about water pollution prevention? Check out these locations and websites, or call San Mateo County Environmental Health at (650) 372-6200.

Household Hazardous Waste

- Properly dispose of household chemicals: www.flowstobay.org/toxic

Projects and Programs

- Water quality sampling: www.smchealth.org/environ/beaches
- Fitzgerald ASBS water quality sampling: www.smchealth.org/asbs
- Green streets and parking lots: www.flowstobay.org/greenstreets
- Recycling, waste reduction, and other sustainability programs: www.recycleworks.org/

Best Practices

- Bay Friendly Landscaping Guide: www.Bayfriendly.org
- Car wash discount coupon: email pollutionprevention@smcgov.org
- Automotive care: www.flowstobay.org/autocare
- Water conservation and gardening classes: www.bawsca.org

Get Involved

- Online Calendar of Events: www.flowstobay.org/calendar
- Team Effort newsletter: email pollutionprevention@smcgov.org
- Kids activities related to stormwater: www.flowstobay.org/kids

Low Impact Development (LID)

- LID fact sheets: Architectural copper, rain barrels, rain gardens, permeable pavers: www.flowstobay.org/newdevelopment
- Resource Conservation District LID information: www.sanmateorcd.org/LID.html
- Fitzgerald ASBS LID workshop presentations: www.smchealth.org/asbs

Pest Management

- Less toxic pest control in the home and garden: www.ourwaterourworld.org, Ant control: www.gotants.org
 - Participating Our Water Our World (OWOW) Coastside stores that sell less toxic gardening products: Hassett Hardware, Half Moon Bay; El Granada Hardware, El Granada; Linda Mar Ace Hardware, Pacifica
- Go to www.flowstobay.org/pestcontrol for a complete list of OWOW participating stores in San Mateo County.



What You Can Do....

Here is a list of things you can do at your home or business to help protect and improve water quality. Choose just one or do them all!

- Pick up pet waste
- Use less toxic gardening products
- Install low-flow sprinkler lines
- Plant native plants that use less water
- Wash your car at a car wash
- Recycle used motor oil and filters
- Maintain your car to prevent leaks
- Dispose of household chemicals properly
- Keep the lid on your trash can at all times
- Pick up litter whenever you see it
- Participate in a cleanup event
- Make your own household cleaners
- Bring your own bag to the store
- Purchase products in bulk, using less packaging
- Make full use of curbside recycling
- Recycle batteries or purchase rechargeables
- Teach your children and friends
- Install rain barrels on your downspouts
- Install rain gardens on your property
- Report illegal dumping to your local authority
- Learn about your watershed and where it drains to at <http://museumca.org/creeks/>