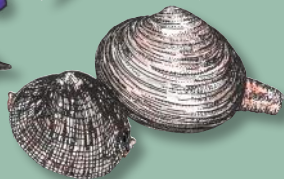


Vashon-Maury Island User's Manual



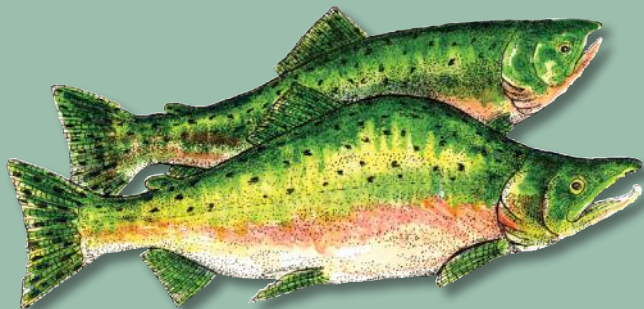
Protect Our Fragile Ecosystems



Vashon-Maury Island User's Manual

*"Each and every one of us
can make changes in the way we live our lives
and become part of the solution."*

Al Gore



Foreword

Living on Vashon-Maury Island is an act of being in relationship with stories, place, and all living things. It arcs across time to the first ancestors of the sxʷəbabs̓, the original stewards of this place. This relationship arcs across time to all our descendants.

Everything we do, collectively, will impact our grandchildren's grandchildren and so on.

Sxʷəbabs̓ stories teach us about the gifts of cedar, salmon, nettles, berries, and plant medicines and how humans can co-exist in a sustainable way. Twulshootseed language, songs and stories evolved from the land, and made possible the beauty we experience each season, each year, each visit to a Vashon beach or trail.

***Human beings have impact.** This guide shares knowledge that can help us do the least harm to the legacy of health, abundance, and clean water we are responsible for leaving behind.*

Indigenous neighbors on Vashon from many different tribes care deeply about this place. The Muckleshoot Tribe tends to its land, shoreline, shellfish beds and forest. Individual Native families are here to work, farm, make art and music, operate small businesses, and raise our families.

Vashon's relationship to Indigenous history, contemporary sxʷəbabs̓ leaders and cultural wisdom is a powerful trend that will be an enduring part of our collective contribution to the future.

This Manual informs us of what we know and don't know about the systems that support our existence here. With this information, we can do more to meet our collective responsibility to the Island's future.

Shelley Means (Ojibwe/Lakota)

Taking Care of Our Home

On our small island we have the opportunity to live as though Nature's needs are truly our needs — in everything we do. This “User's Manual” aims to remind us that we live in partnership with Nature whether we're residents or visitors. We humans don't own this green refuge; we are its stewards, and we are charged with protecting it from the ravages of the Climate Crisis and of our own habits.

If you want to care for a treasure, it's important that you know how it works. Every inch of this place hosts an ecofamily — trees, plants, birds, bugs, animals, fish, seals, otters, anemones and, yes, humans. Here, we offer some information about how our Island works so we can be the best possible stewards Nature could want.



CONTENTS



What is it about this Island?	3
We're Surrounded by Water.	4
What's An Aquifer?	4
Water Districts Dispense and Treat Water	5
Wells — A Deep Subject!	6
Whatever Type of Well You Have ...	7
Residential Septic Systems	8
Regular Maintenance = Disaster Prevention!	10
Proper Maintenance ...	11
Between inspections ...	12
The Scoop on Pet Poop!	13
Walking the Talk! Protecting the Island's Rural Character	14
Wetlands are Nature's Drainage System	15
Wildlife — Our Co-Habitants	15
Vashon Birds Are at Risk. You can help!	16
When Cute Critters Become NUISANCE Wildlife!	17
Your Yard Isn't Just Yours. Make Habitat Protection a Habit!	18
So ... What does all this mean for you?	19
Here Are Some Uniquely Vashon Recycling Opportunities	20
When in Doubt, Throw it Out!	21

What is it about this Island?

Some call it, *"The Heart of the Sound"*

7he Island is approximately 37 square miles of land that ranges from 0 to about 520 feet above sea level. And, combined with Maury Island, it boasts over 50% of King County's total shoreline miles — that's 51 miles of beach! Though the Islands' land mass is equal to that of Manhattan

Island, Vashon's terrain is largely rural, and in places, rugged, so residents and visitors alike enjoy a host of recreational options for some enriching experiences in the natural world.

Because the Island is surrounded by water, *everything that happens here affects the quality of Puget Sound waters*. For decades, since its settling by non-indigenous people in 1864, Vashon's shorelines bustled with commercial transport activity impacting the Sound's wildlife and marine flora. Vashon's **land ecosystems** are sensitive too! Agricultural and commercial activity have whipsawed the Island environment over the years from lush old growth forest to clear-cut farmland and back to more reforested area. Our water and land are currently in recovery mode challenged by today's

insulting pollutants, development, and *The Climate Crisis*. ***We Island Users can aid that recovery*** while we reap the benefits of conserving water, protecting water quality, and ***living gently on our land***.



We're Surrounded by Water

What Goes ON the Ground Goes IN the Sound!

The health of Puget Sound and the life in it is essential to our own health. Everything we put into the ground, flush down our toilets, or run down our sink drains eventually goes into Puget Sound, so **we must deal with how we treat our sewage and wastewater.** Rainwater runoff washes the residue of our activities into the Sound. Pesticides and artificial fertilizer from our gardens, playing fields, and lawns often end up in the Sound, affecting fish and their ability to live, breed and/or escape predators. **Oil from our cars flowing down a storm drain can kill an adult salmon in less than three hours.** A recently discovered and ubiquitous additive to tires is deadly to salmon, and it shows up in our streams, in the woods, and in our backyards. Shoreline armoring (bulkheads) damages marine ecosystems. **The more we know about how our actions affect Island waterways and Puget Sound, the healthier we will be.**



What's An Aquifer?

WE DRINK RAIN! Rain and snow are Island life. Our drinking water, our groundwater, and streams are replenished by one source: **precipitation.** All Vashon's water for drinking, toileting, gardening, farming, and yard maintenance comes from a **"sole source" yet complicated aquifer system of relatively**



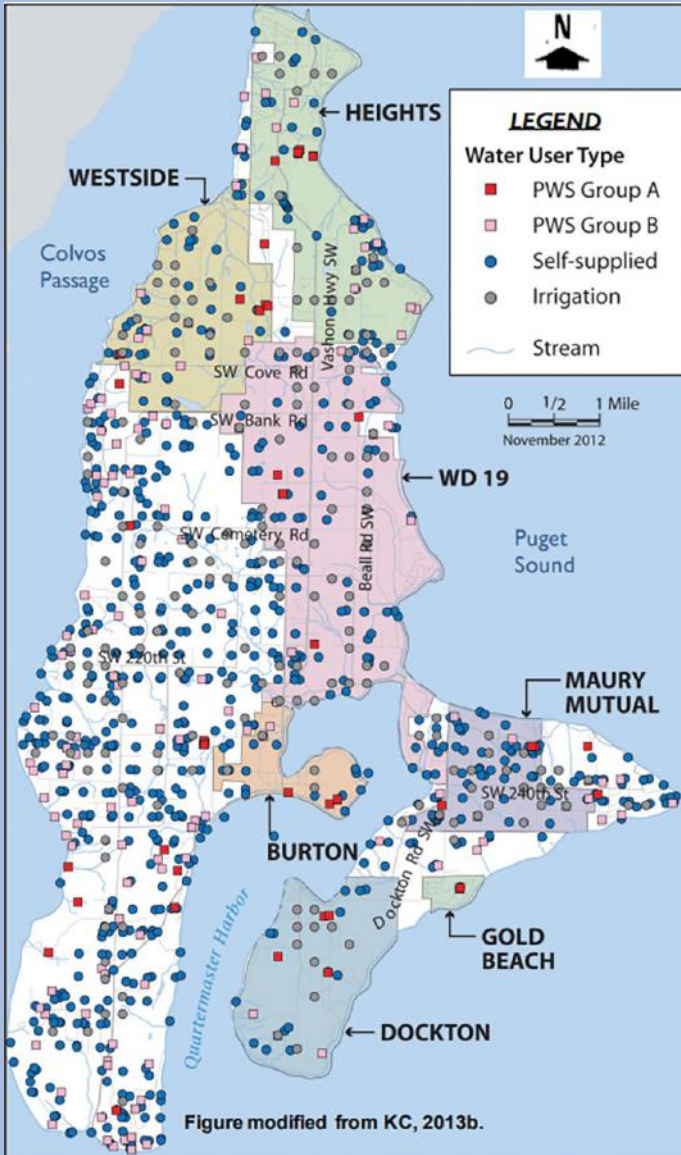
permeable and porous sedimentary deposits beneath the Island's surface, as well as island streams. **We have no other water sources!**

Aquifers and streams are replenished by legendary PNW rain showers and properly treated wastewater **from our septic systems.** The limitations caused by our aquifer system have helped to restrain development and keep

our Island's rural feel. Yet Climate Change has brought frequent droughts to our Island, making water conservation and water quality even more important. **We're self-reliant when it comes to fresh water, so keeping it clean is crucial!**

Water Districts Dispense and Treat Water

Water from the aquifer is delivered to most Island homes and businesses by seven water distribution districts: King County District 19, Dockton, Maury Mutual, Gold Beach, Westside, Burton, and Heights Water Districts.



Many Vashon homes are not served by the water districts, but by private wells. Whatever the source, once we use the water it becomes sewage. Island sewage only has a few options. It can be collected and piped to the wastewater treatment plant; it can stay at home and be treated in your own backyard, or in some instances it might be collected with the neighbors' wastewater and be taken care of in a community system.

It all depends on where you live.

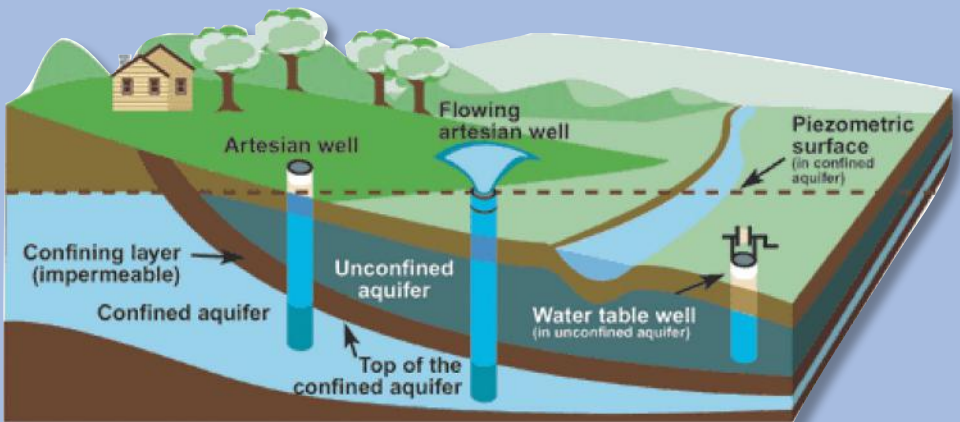


Wells — A Deep Subject!

*If your water supply comes from a well on your property, your primary concern is maintaining the **Water Quality**. The water in wells on Vashon Island also comes from our **Sole Source Aquifer**, but that water can become contaminated en route to your well.*

If you have a **Water Table Well** it penetrates the aquifer without benefit of a protective water-resistant layer. Pumping the well lowers the water table near it. That makes these wells particularly sensitive to seasonal changes and they may dwindle during dry periods. So, you need to **be especially careful with this type of well**.

If you have an **Artesian Well**, it penetrates the ground water with confining layers above and below the Aquifer. Rainfall enters the Aquifer through porous layers at high elevations causing the ground water to be under pressure at lower elevations. Because of this pressure, the water level in the well is higher than the Aquifer. A well that yields water by artesian pressure at the ground surface is a **"Flowing" Artesian Well**.



Whatever Type of Well You Have ...

Here's how to protect it from contamination:

- **Keep pollution sources** (barnyards, pastures, sewers, chemicals, septic system components) at least **100 feet away** from the well. Make sure the well is on high ground, sloped away in all directions from the well casing to divert potentially contaminated surface water from seeping in.
- It must have an **overlapping, tight-fitting cover**, or sanitary seal at the top of the casing or pipe sleeve.
- **The ring-shaped space outside the well casing must be sealed** with cement grout or bentonite clay at least 2 inches thick to a minimum depth of 18 feet.
- **Protect** well equipment, storage tank, and piping in a pump house.
- **Install a pitless adapter** instead of a well pit to provide a sanitary and frost-proof seal between the casing and the water line running to your home.
- Be sure your **well-head protection** area is King County approved.
- **Test your well water for bacteria every 12 months and for nitrate every 36 months.** Submit those test results to Public Health, Seattle & King County. Get complete instructions from Public Health: Seattle & King County at Public Health; Seattle & King County Bacteriological Samples page, kingcounty.gov/bacteria
- **Disinfect your well every year**, especially immediately after a repair or if your tests reveal bacteria in the water. Most sources recommend using bleach or chlorine to rid wells of bacteria. For instructions on the proper procedure go to King County Disinfection of Private Wells, kingcounty.gov/well-water.

You are not legally required to test your private water system for quality, but it's a really good idea to **test your well for fecal coliform — poop bacteria — nitrate plus nitrite and arsenic.** *A good time to do this is in the fall after the rains have begun.*

*For more information on well maintenance, go to this King County website: **Keeping Wells Safe***



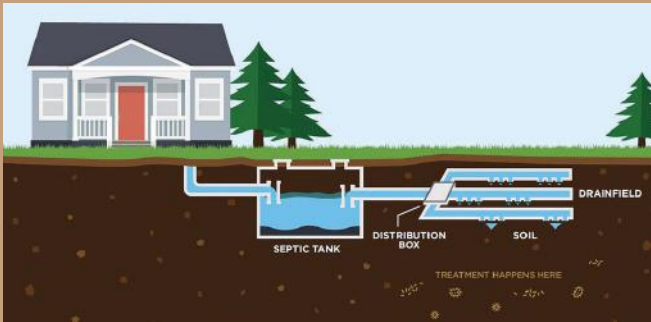
Residential Septic Systems

That Little Wastewater Treatment Plant in Your Yard!

In case you're wondering ... you'll know you have a septic system if the waterline coming into your home doesn't have a meter, if your water bill doesn't include a sewer charge, or if your neighbors have septic systems. You'll find tank lids or **'manhole covers'** in your yard that protect the septic tank, which is a buried, water-tight container usually made of concrete, steel, or polyethylene. **Its job is to hold the wastewater long enough to allow solids to settle to the bottom forming sludge, while the oil and grease float to the top as scum.** You can find your property's septic system by going to www.kingcounty.gov/oss. Under the "Resources for Residents" section, click on OSS Records and follow the instructions to find your OSS drawing.



Here's how a Septic System works: All the water from your house runs from one main drainage pipe into the septic tank in your yard. The untreated liquids go from the tank into the drainfield — a shallow absorption field in undisturbed soil that ensures the wastewater is evenly distributed and appropriately treated.



A properly treated system supports the natural bacteria — heroes of the septic system — that break down waste and keep deadly pathogens out of the water.

Whatever system you have, it moves that wastewater through pipes into the soil, where microorganisms consume its nutrients and send it into groundwater, thus removing harmful bacteria, viruses, and substance naturally. **It's kind of magical...unless the drainfield gets overloaded.** That's when it can flood, causing sewage to flow to the ground surface or create backups in toilets and sinks ... ***Septic Disaster!***

It's good to know the type of System you have:

- **A Gravity System** uses a network of underground pipes to move wastewater by gravity through a tank, a distribution box, and into a drainfield.
- **A Pressure Distribution System** has a control/alarm panel and uses pressure to move the wastewater from the septic tank to the pump tank through a manifold to the drainfield. In a pressure distribution system, the wastewater is distributed evenly across the drainfield, which helps the soil treat the wastewater better
- **A Sand Filter System** also has a control/alarm panel and moves the wastewater through the septic and pump tanks via gravity or pressure adding a sand filtering system for more efficient treatment.
- **A Subsurface Drip System** differs from the others in that it pumps the sewage through a network of small tubes from which waste drips through a series of small emitters to the drainfield. This type of drainfield takes up the least space and can be installed on steeper inclines, so it is especially helpful for properties where conventional septic systems would not be possible to install or would not provide sufficient treatment.
- **An Aerobic Treatment System** sometimes contains a trash tank to trap sewage for settling, so that it can move into an aerobic treatment unit that adds treatment by blowing air into the sewage. Finally, sewage flows into a gravity, pressure, or drip system drainfield.

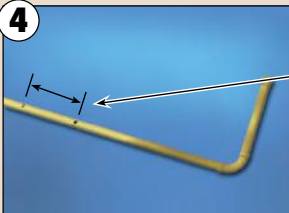
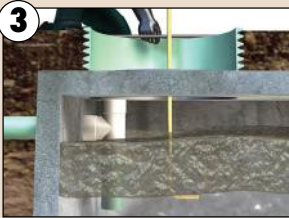
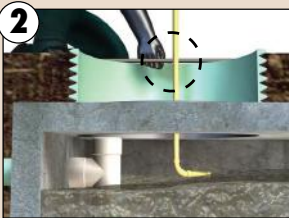


Regular Maintenance = Disaster Prevention!

You can prevent Septic Disaster simply by having a Septic Professional inspect and pump your tank regularly. The frequency depends on the type of system you have as well as the size of your tank, the size of your household, how much wastewater you're producing, and how much solid waste you generate. Inspect gravity systems every 3 years; pressure distribution and sand filter systems every year; aerobic treatment units, drip distribution, and other proprietary systems every 6 months. To find a list of King County certified maintainers who perform inspections, go to: www.kingcounty.gov/oss/professionals

MEASURE THE SCUM LAYER

Note: If your tank has 2 chambers, perform all steps on both the inlet and outlet sides of the septic tank.



SAFETY CHECK: KEEP HEAD OUT OF RISER AND TANK WHEN CHECKING.

Place scum stick on top of scum layer.

Mark scum stick even with top of riser.

Make a hole in the scum layer and lower scum stick through hole.

Pull scum stick up until you feel the resistance of the scum layer.

Mark scum stick again, even with top of riser.

Remove the scum stick and place on a tarp.

Measure the distance between the two marks.

Mark the distance here:

Inlet Scum Depth (inches) _____

Outlet Scum Depth (inches) _____

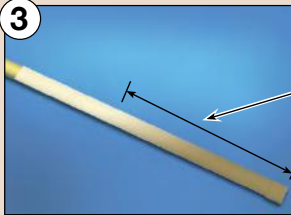
IF SCUM LAYER IS MORE THAN 6 INCHES HAVE YOUR TANK PUMPED

Proper Maintenance Can Make a Septic System Last Almost 40 Years!

You'll know it's pumping time if the bottom of the scum layer is within six inches of the bottom of the T-shaped outlet from your tank, or if the top of the sludge layer is within 12 inches of the outlet. You'll be able to check your system if you keep the tank lids accessible; **don't bury or build over them.**

MEASURE THE SLUDGE LAYER

Note: If your tank has 2 chambers, perform all steps on both the inlet and outlet sides of the septic tank.



SAFETY CHECK: KEEP HEAD OUT OF RISER AND TANK WHEN CHECKING.

Carefully insert sludge stick into hole in scum or through baffle.

Lower sludge stick to bottom of tank and wait 3 minutes.

Carefully remove the sludge stick and place on a tarp.

Measure the length of the sludge stain on the Velcro.

Mark the distance here:
Inlet Sludge Depth (inches) _____
Outlet Sludge Depth (inches) _____

4 Add the scum depth (previous page) and sludge depth.

Inlet Scum Depth (inches) _____
Inlet Sludge Depth (inches) _____
Inlet Total Depth (inches) _____
Outlet Scum Depth (inches) _____
Outlet Sludge Depth (inches) _____
Outlet Total Depth (inches) _____

Does Your Tank Need Pumping? Yes No

IF THE SCUM DEPTH IS MORE THAN 6 INCHES, HAVE YOUR TANK PUMPED.

IF THE SLUDGE DEPTH IS MORE THAN 12 INCHES, HAVE YOUR TANK PUMPED

IF THE TOTAL DEPTH IS MORE THAN 18 INCHES, HAVE YOUR TANK PUMPED.

Between Inspections ...

Here's how you can keep those microorganisms happy and working hard:

- **Keep your household water flow low.** Spread out water usage as much as possible, especially laundry (avoid running multiple loads at once).
- **Redirect water from your roof drains** or yard away from the septic system drainfield.
- **Compost food scraps** to keep them out of the septic system.
- **Throw excessive soaps, oils, and greases** into the trash.
- **Keep strong chemicals, cleaners, and additives out of the system;** avoid using them at all.
- **Cover your drainfield with grass** or other appropriate plants. Concrete or other non-porous surfaces deprive those microorganisms of the oxygen they need to do their job.
- **Use your garbage disposal sparingly** or not at all; it uses lots of water and adds more solids to the system causing it to fill faster.
- **And remember — toilets are not garbage cans!** Only flush poop, pee, and toilet paper.



A healthy septic system protects your family and your neighbors from disease. But if it doesn't work, ground water contaminated by poorly treated household wastewater poses dangers to drinking water and to the environment. **A malfunctioning septic system releases bacteria and viruses into the ground. They eventually enter streams, rivers, lakes, and more, harming local ecosystems by killing native plants, fish, and shellfish. Watch for signs of the dreaded *SEPTIC SYSTEM FAILURE!***

Call a Septic System Pro if:

- Wastewater backs up into household drains.
- You see bright green, spongy grass on the drainfield during dry weather.
- Water or muddy soil pools around your septic system or in your basement.
- There is a strong odor around the septic system.

Know how old your system is and plan ahead to replace it. King County is a good source for technical and financial help when your septic system needs repairs or replacement.

The Scoop on Pet Poop!

Here, on our little chunk of paradise we are especially dog and cat friendly. You probably clean up after your pets, but you may be wondering what is the **'green'** way to do that? A recent study found, surprisingly, that putting it in the garbage in a plastic bag is the best way to protect people and water supplies from disease-spreading pathogens in pet waste. You don't need to buy biodegradable bags because they don't break down in the landfill much faster than other plastic bags. Save money and reduce waste by just **reusing your old plastic bags.**



It's best to remove the poop from your own back yard quickly because leaving it there means it can be washed into waterways. And keep the poop out of your yard waste collection container as well as your own compost bin to avoid harmful bacteria in garden compost.

Leaving dog poop on the beach is particularly bad because it washes into the Sound where it immediately harms marine mammals and is concentrated in shellfish. *Nobody wants to bite into a raw oyster that just dined on dog poop!*



Pick it up; don't leave that job to the tide!

FOR CATS, it's best to use litter made from recycled newspaper, sawdust, or grain by products; not clay based litter. Put used litter in a bag in the garbage... or train your cat to use the toilet.

Now that's a trick!



Walking the Talk!

Protecting the Island's Rural Character

Nearly 5000 acres of Vashon-Maury Island is preserved for wild places and human recreation. Three thousand of those acres are protected and stewarded by private landowners — a testament to the community's values. The Vashon-Maury Land Trust's Mission statement says it all: *"To conserve the land and to protect the natural ecosystems and rural character of Vashon-Maury Island for the benefit of the public and future generations."*

Because Vashon treasures its rural and wild places, residents and visitors have ready access to biking and hiking trails, water sports, camping, horseback riding, swimming indoors and out, athletic fields, inline skating, skateboarding and playgrounds.

These lands and parks are managed through a collaboration among Vashon Park District (vashonparks.org), the Vashon-Maury Land Trust (vashonlandtrust.org) and King County Department of Natural Resources and Parks (kingcounty.gov/depts/dnrp).



Wetlands are Nature's Drainage System

Wetlands help us preserve our groundwater in several ways.

They filter rainwater, removing pollutants, and they act as storage tanks to allow water to recharge our aquifer. They're also natural flood safety valves.

For example, a six-inch rise in water level over a 10-acre marsh can provide temporary storage and sediment trap for 1.5 million gallons of water. And they provide habitat to precious cattails and Sitka spruce, salamanders and great blue herons, white-tailed deer, and juvenile salmon — **wetlands overflow with life.**



Vashon's wetlands are protected by county, state, and federal laws. If you're planning to build a home or business on Vashon, it's important to **design your project to avoid impact on wetlands.** To determine your potential impact on Island wetlands, have your project assessed by the Washington State Department of Ecology.

Wildlife — Our Co-Habitants

*L*ife on a rural island like this one means we humans live with a variety of other species. Vashon-Maury Islands are teeming with wild creatures from fish and shellfish to banana slugs, birds, raccoons, and deer. We even host carnivores including coyotes, and the occasional bear or cougar.



As mainland areas surrounding the islands become more densely populated, larger wildlife seek rural areas like Vashon for habitat and food. Any critter that can swim or stow away on a boat can get to Vashon and breed.

We cherish our wildlife and strive to co-exist with them in good health!

Vashon Birds Are at Risk.

You can help!

Many of Vashon's birds may be at risk of extinction due to climate change, not only because global warming affects their food supply, but also because of lost habitat.

Here are some things you can do for birds:

- **Make windows bird-safe.** Windows look like inviting places for birds to fly into. You can prevent this by adding decals to your windows or drawing grid patterns on them with soap or washable tempera paints. Add hanging ropes to the windows. Mosquito screens and netting can also be effective deterrents.



- **Keep cats indoors** and fit them with bell collars.



- **Replace lawn** with native trees and shrubs to increase bird habitat.



- **Drink only shade-grown coffee;** the forest-like farms create habitat.



- **Use less plastic** — it's killing swans, geese, gulls, and many more.



- **Avoid all pesticide use, including rat poison!**



When Cute Critters Become NUISANCE Wildlife!

Wild animals are a living reminder of our connection to the natural world. Yet, some can turn into problems if, say, a raccoon nests under your house or an otter camps out under your deck. Others can damage crops and ornamental plants, or even threaten pets. If barriers and scare tactics



fail, the Washington State Department of Fish & Wildlife, WDFW (wdfw.wa.gov) provides information on have-a-heart traps, specifically on when and how to use them. You may undertake ‘eviction’ tactics. Or, If there are young animals involved, you might choose to allow the family to stay put until the youngsters leave. Squirrels, raccoons,

and opossums usually leave the nest at eight to ten weeks old. But often the best bet with nuisance wildlife is to call in a professional. That will assure that you’re not separating an adult animal from its nursing offspring and that the eviction is permanent. **Of course, prevention helps.** Keep garbage lids closed tight and food waste out of reach of hungry animals in search of an easy meal.

WDFW enlists the help of private citizens who have skills and training in the capture and handling of many wildlife species. These people are called **Wildlife Control Operators (WCOs)**, and there are many throughout the state. A WCO must be certified through WDFW and conform to its regulations, but they are not state employees and operate as private entities, setting their own fees.



You can find listings at wdfw.wa.gov

Your Yard isn't Just Yours

Make Habitat Protection a Habit!

You can help to preserve our Islands' sensitive and biodiverse ecosystems in your own back yard. By creating habitat for wildlife at home, you help to offset the habitat that's lost to development, and to Climate Change. If your garden or yard provides food, water, shelter, and space to raise young animals, and if you use native plants and not pesticides, you're already creating habitat. Even if you can only provide one or any combination of these elements, you're conserving Island wildlife while you enrich our entire ecosystem.

Native plants attract native insects, birds, and bees, each critical to building diversity and a healthy ecosystem. Wildflowers native to Western Washington are at their best if you can grow them from seed, expanding your options for availability and volume. Plan to have one or more blooming every season.



Some examples of plants you can start now are:

- Strawberry
- Sedum
- Yarrow
- Buckwheat
- Blanket Flower
- Pearly Everlasting
- Fireweed, Asters
- Goldenrod

Add garden variety herbs and edibles for people, bees, and bugs:

- Thyme
- Oregano
- Mint, Basil
- Sage
- Hyssop
- Cilantro
- Dill
- Borage
- Flowering Kale
- Arugula
- Mustards

So ...

What does all this mean for you?

Here are some things you can do right now to improve water quality, save water and wildlife, and conserve our Island ecosystems!

If you follow these tips and all the advice on previous pages, you truly are **Taking Care of Our Home.**

- Install rainwater-harvesting barrels** to replenish our aquifer.
- Pick up pet waste**, especially on the beach, to protect marine wildlife from toxins.
- Don't trash your septic system**; keep contaminants out to preserve groundwater quality.
- Know your well** and test it regularly for harmful bacteria.
- Install drip irrigation** to save water by focusing it where it's needed.
- Plant native, drought-tolerant plants** to conserve water and provide wildlife habitat.
- Secure your garbage** to keep wildlife safely wild.
- Before you build**, know your proximity to wetlands and keep them working.
- Grow food** to save money and plastic packaging.
- Start a compost pile** and/or worm bin so you don't need chemical fertilizers.
- Avoid all pesticide/herbicide** use to protect birds and fish.
- Make windows bird safe** and keep cats indoors.
- Carpool or use mass transit**; get an electric car if you can afford it — cut your carbon dioxide (CO₂) emissions.
- Buy from local** farm stands and the Farmer's Market to save pollution from transport.
- Go reusable and BYO** (water bottle, cups, food containers, shopping bags, diapers, hankies, batteries) to reduce plastics and chemical pollution.
- Wash and dry polyesters, fleece, and microfiber clothing in mesh bags** to keep microplastics out of the air.
- Get creative about recycling and upcycling** — anything plastic, clothing, tools, toys.
- Buy in bulk** to avoid individually wrapped items.



Here Are Some Uniquely Vashon Recycling Opportunities

- **Give to Granny's Attic;** their proceeds fund Island non-profits.
- **The King County Transfer Station** on Vashon takes old clothing and shoes that can't go to Granny's or consignment shops. For the "*Vashon Recycling & Transfer Station Recycling Guide*," go to: zerowastevashon.org/wp-content/uploads/2019/03/Vashon-recycling-guide.pdf
- **Styrofoam Recycling**, on the 1st Sunday of the month, recycles a wide variety of items that can't be recycled at the Transfer Station. *To get the list of accepted materials, go to:* zerowastevashon.org/wp-content/uploads/2021/03/Styro-Recycle-Accept.pdf
- **Prescriptions** can be refilled in their original bottles at Vashon Pharmacy. They also recycle empty prescription bottles.
- **Vashon Pharmacy** disposes of unused medications. Don't trash or flush pills.
- **Ace Hardware** recycles motor oil, compact fluorescent bulbs, and batteries.
- **The King County Wastemobile** takes hazardous waste annually.
- **IGA** recycles plastic bags.
- **The Vashon Senior Center** recycles lightbulbs.
- **Vashon Disposal** offers curbside garbage and recycling collection services. Contact them for details about rates and to set up service.

When in Doubt, Throw it Out!
Contamination increases the cost of recycling.
Clean and Recycle These items!



Credits



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Resources — Where Did We Get All This Information?

King County Public Health: kingcounty.gov/depts/health.aspx

King County Design and Civic Engagement, Aquifer illustration, page 4

King County Department of Natural Resources and Parks: kingcounty.gov/depts/dnrp.aspx

Vashon Groundwater Protection Committee: kingcounty.gov/services/environment/water-and-land/groundwater/management-areas/vashon-maury-island-gwma/committee.aspx

Vashon Nature Center: vashonnaturecenter.org

Vashon-Maury Island Land Trust: vashonlandtrust.org

Vashon Park District: vashonparks.org

Vashon Groundwater Articles and Pesticide/Herbicide Resources

from King County: kingcounty.gov/services/environment/water-and-land/groundwater/management-areas/vashon-maury-island-gwma/liquid-assets.aspx

kingcounty.gov/depts/dnrp/solid-waste/programs/natural-yard-care/pesticide-use/pesticides-environment.aspx

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