

MONTEREY ONE WATER

TERTIARY TREATMENT



Monterey One Water
Providing Cooperative Water Solutions

CENTRAL COAST OF CALIFORNIA

MONTEREY ONE WATER

A public utility providing wastewater and water reuse services in northern Monterey County



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MUNICIPAL WASTEWATER

Inside water usage from the residents and businesses of our 10 member cities/districts

(Consistent)



DRAINAGE WATER FROM CROP IRRIGATION

Excess water from the irrigation process which drains into channels

(As Needed/Available)



INDUSTRIAL PROCESSING WATER FROM FOOD PACKAGING

Water used to wash packaged produce, e.g. bagged salads, pre-washed veggies

(As Needed/Available)



URBAN DRY AND WET WEATHER RUNOFF

Outside water usage that drains into a city's stormwater pipe system

(As Needed/Available)

**4 SOURCE WATERS combine to form
influent into M1W's Regional Treatment Plant**

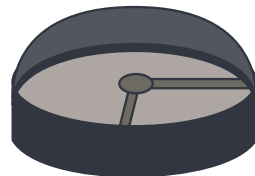
PRIMARY/SECONDARY TREATMENT



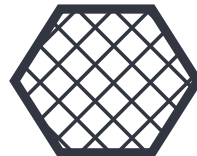
1
HEADWORKS



2
PRIMARY CLARIFIERS



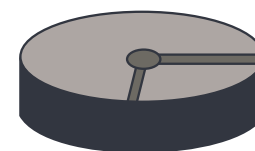
3
TRICKLING FILTERS



4
BIOFLOCCULATION



5
SECONDARY CLARIFIERS



THE FORK IN THE ROAD



Regulated Ocean Discharge
Predominantly Wintertime



Non-Potable Reuse
Agriculture Irrigation



Indirect Potable Reuse
Groundwater Replenishment



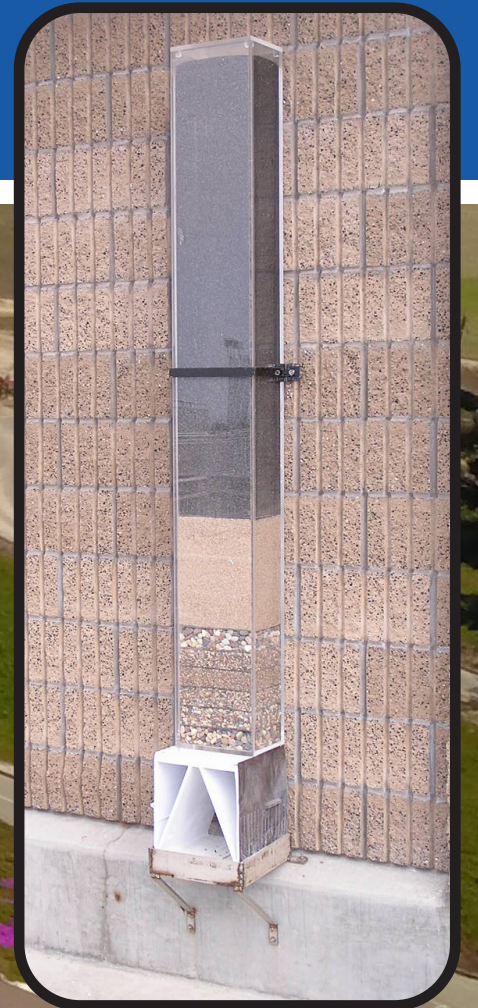
OCEAN DISCHARGE

Distance: Regional Treatment Plant to Coastline + 2 miles into the Monterey Bay

Outfall Pipe: 60 inch diameter; 100 feet below surface of the water; last 1,000 feet include discharge ports

Water Quality: Secondary effluent; meets California Ocean Plan

TERTIARY TREATMENT



1
FLOCCULATION



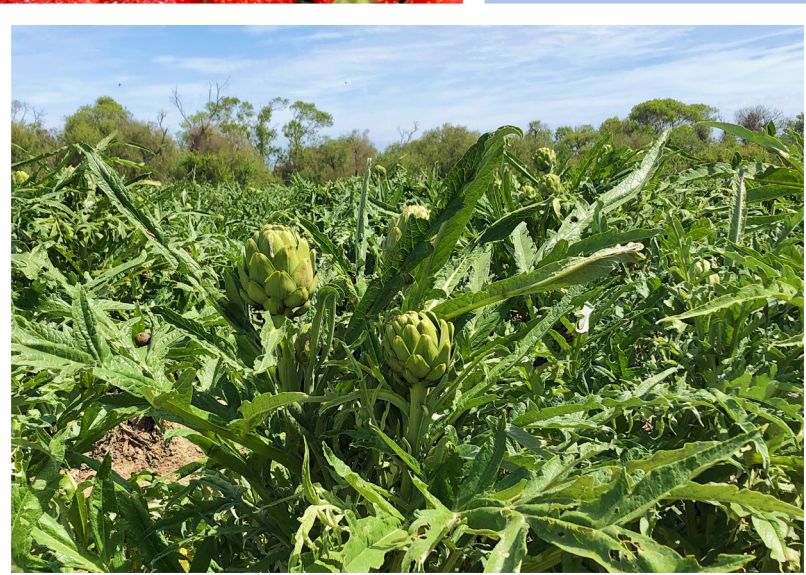
2
TERTIARY FILTERS




3
CHLORINE DISINFECTION






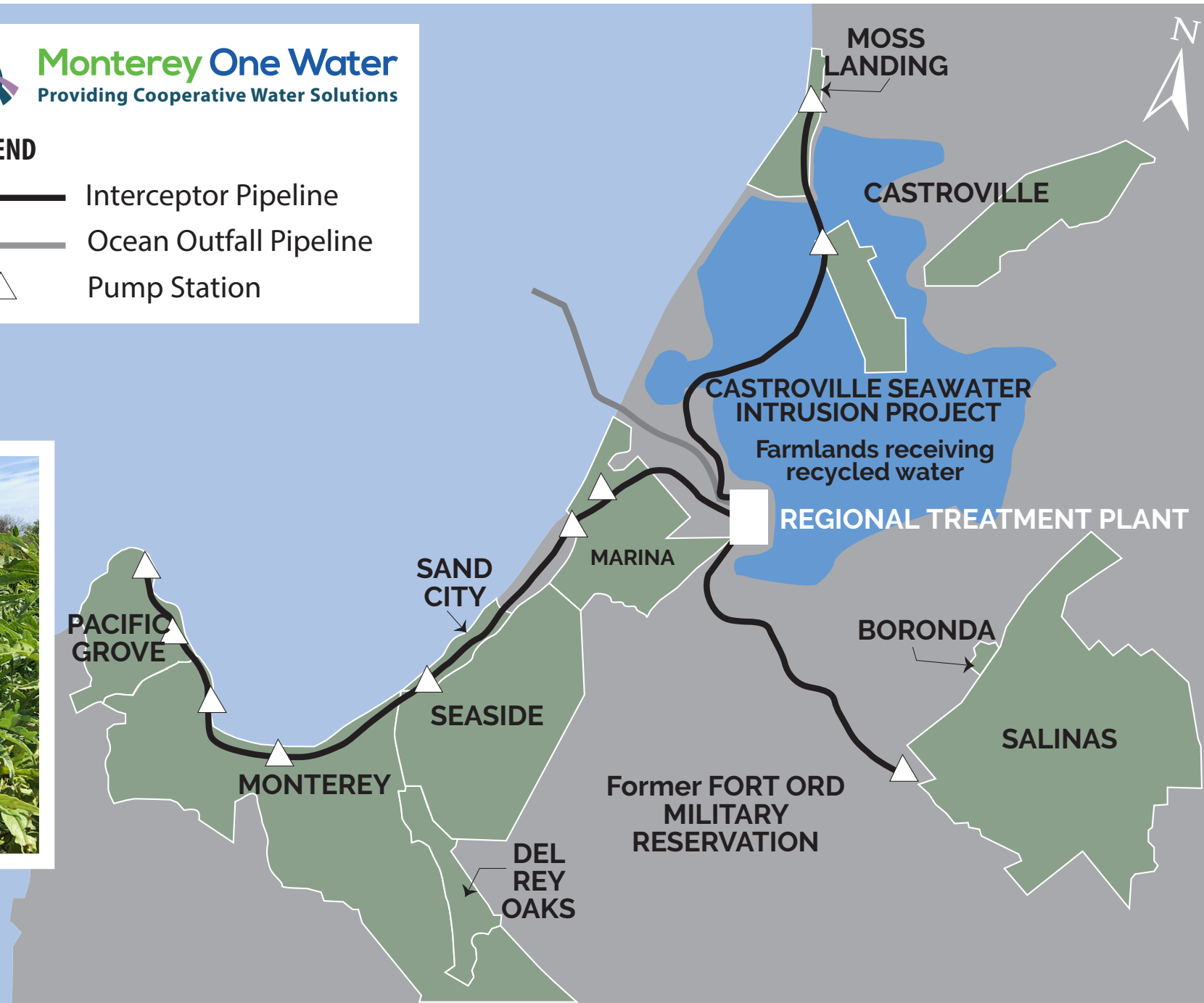
PROJECT AREA: End Users



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LEGEND

-  Interceptor Pipeline
-  Ocean Outfall Pipeline
-  Pump Station



WATER RECYCLING : Food Crop Irrigation

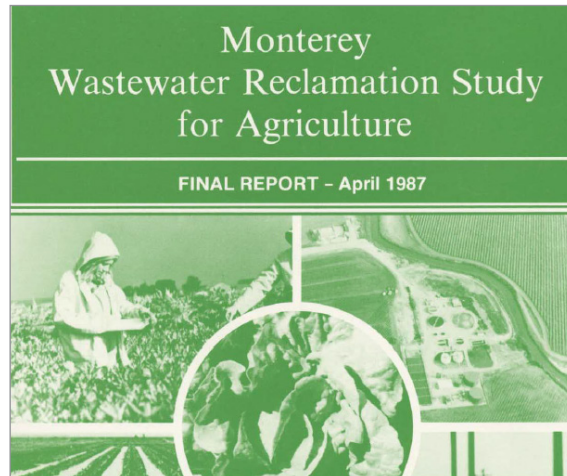
1970s

Project concept identified—
recycled water for crop
irrigation to combat seawater
intrusion



1976-1987

Extensive study conducted to
prove recycled water is safe
on directly edible food crops



1992

Partnership formed to build, produce, and distribute
recycled water to 12,000 acres of farmland

1995

Construction begins
Two components:
(1) production facility and
(2) distribution system



APRIL 16, 1998

First day recycled water was
delivered to food crops in the
project area



2023

25 years and more than 100
billion gallons delivered

12,000 ACRES
of farmland
with approximately
26 GROWERS



TITLE 22
state water quality standards
for recycled water
compliance requirement



10,236 ACRE FEET
of recycled water produced
in 2024 for conventional
and organic food crops





Pure Water Monterey

A Groundwater Replenishment Project

Challenge: State and court-mandated reductions to surface water and groundwater due to habitat degradation and limited natural replenishment (respectively)

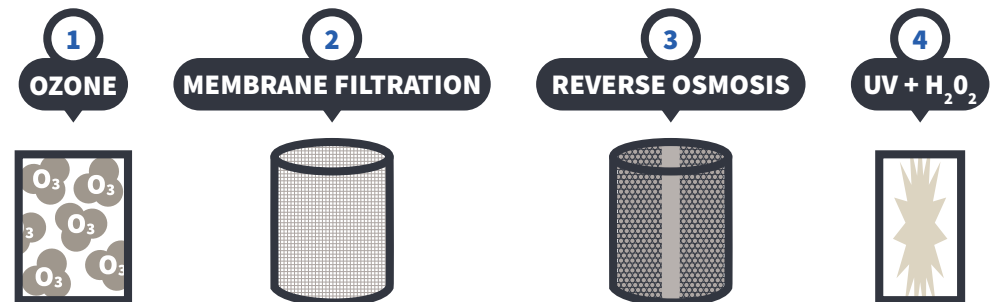
Solution: Recycled water for groundwater replenishment

Production Start: February 2020

Facility Size: 7.6 million gallons per day

Influent: Secondary effluent

Treatment: Advanced purification



Serves: Private water supplier's Monterey District of 104,000 residents, almost 5,000 businesses, and more than 9 million visitors a year

Annual Production: 5,750 acre feet

POTABLE REUSE



QUESTIONS?

WATER QUALITY: Sampling & Monitoring Program

MONTEREY COUNTY WATER RECYCLING PROJECTS MONITORING PROGRAM

CONSTITUENTS	Recycled Water	SRDF: Disinfected River Water	DISTRIBUTION SYSTEM			Soil Salt Monitoring	
			Supplemental Wells (5-13 monthly)	Storage Pond Outlet	Monitoring Station A1	7 Sites (6 Test, 1 Control)	
						Irrigation Water Recycle & Well Water	Soil 1'' – 12'' 12'' – 24'' 24'' – 36''
Metals (As, Ba, Cd, Cr, Cu, Fe, Pb, Mn, Ni, Se, Ag, Zn)	--	--	--	Annually	--	--	--
Organics (Toxics – Volatile & Semi-Volatile, Pesticides, Inorganics)	--	--	--	Annually	--	--	--
Agronomics (B, Ca, Mg, K, Na, SO ₄ , Alkalinity, Cl, SAR, ESP, SAR _a , HCO ₃ , CO ₃ , Hardness, NO ₃ , NO ₂ , NH ₃ , o-PO ₄)	Monthly	Monthly	--	Monthly*	--	Na & Cl Once/Week	3/Year
TDS (Total Dissolved Solids)	Weekly	Monthly	--	--	--	--	--
Specific Conductance	Continuous	Daily	--	Daily	Continuous	Continuous	--
pH	Continuous	Daily	--	Daily	--	--	--
Total Suspended Solids	Daily / Monthly	Weekly	--	--	--	--	--
Turbidity	Continuous	Daily	--	Daily	--	--	--
Settleable Solids	Daily	Weekly	--	Weekly	--	--	--
BOD	Weekly / Monthly	--	--	--	--	--	--
Chlorine Residual	Continuous	Continuous	--	Continuous	Continuous	--	--
Total Coliform	Daily	Daily	Monthly	Daily	Daily (M-F)**	--	--
Generic E. coli	Daily	Daily	Monthly	Daily	Daily (M-F)**	--	--
Total Coliform and Generic E. coli (County Health)	Annually*	Annually	--	Bi-Weekly	--	--	--
Pathogens (Helminth, E.Coli 0157:H7, Legionella, Shigella, Salmonella, Listeria, Campylobacter)	--	Annually	--	3/Year	--	--	--
Pathogens (Cyclospora, Giardia, Cryptosporidium/Infectivity, Total Culturable Viruses, Enterovirus and Norovirus [GIA, GIB, GII])	--	Annually	--	Annually	--	--	--
Clostridium P. (County Health) (Headworks sampled in conjunction)	Annually*	Annually	--	3/Year	--	--	--

Red – Regulatory Requirement Green – Irrigation Suitability Blue – Food Safety *SRDF operating **Excluding holidays

WATER QUALITY & OPERATIONS COMMITTEE

Monthly Meetings during Peak Growing Season

STAKEHOLDERS

- Monterey One Water
- Monterey County Water Resources Agency
- Representatives from growers in the project area
- County Health

COMMITTEE GOALS

Initial:

- Build trust and communication between stakeholders
- Review water quality

Today:

- Monitor water quality trends
- Identify opportunities for improvement