Dare Co Regional

2022

The Division of Water Resources (DWR) provides the data contained within this Local Water Supply Plan (LWSP) as a courtesy and service to our customers. DWR staff does not field verify data. Neither DWR, nor any other party involved in the preparation of this LWSP attests that the data is completely free of errors and omissions. Furthermore, data users are cautioned that LWSPs labeled **PROVISIONAL** have yet to be reviewed by DWR staff. Subsequent review may result in significant revision. Questions regarding the accuracy or limitations of usage of this data should be directed to the water system and/or DWR.

1. System Information

Contact Information

Water System Name:	Dare Co Regional	PWSID:	04-28-030
Mailing Address:	600 Mustian Street Kill Devil Hills, NC 27948	Ownership:	County
Contact Person:	William Nash	Title:	Dare County Assistant Utilities Dir
Phone:	252-475-5606	Cell/Mobile:	--
Secondary Contact:	Jordan Curles	Phone:	252-475-5808
Mailing Address:	600 Mustian Street Kill Devil Hills, NC 27948	Cell/Mobile:	--

Complete

Distribution System

Line Type	Size Range (Inches)	Estimated % of lines
Asbestos Cement	6-16	2.00 %
Ductile Iron	6-30	4.00 %
Polyvinyl Chloride	2-24	94.00 %

What are the estimated total miles of distribution system lines? 247 Miles

How many feet of distribution lines were replaced during 2022? 15,840 Feet

How many feet of new water mains were added during 2022? 200 Feet

How many meters were replaced in 2022? 4,693

How old are the oldest meters in this system? 16 Year(s)

How many meters for outdoor water use, such as irrigation, are not billed for sewer services? 0

What is this system's finished water storage capacity? 17.8550 Million Gallons

Has water pressure been inadequate in any part of the system since last update? *Line breaks that were repaired quickly should not be included.* No

Programs

Does this system have a program to work or flush hydrants? Yes, Semi-Annually

Does this system have a valve exercise program? No

Does this system have a cross-connection program? Yes

Does this system have a program to replace meters? Yes

Does this system have a plumbing retrofit program? No

Does this system have an active water conservation public education program? Yes

Does this system have a leak detection program? No

Water Conservation

What type of rate structure is used? Increasing Block

How much reclaimed water does this system use? 0.0000 MGD For how many connections? 0

Does this system have an interconnection with another system capable of providing water in an emergency? Yes

2. Water Use Information

Service Area

Sub-Basin(s)	% of Service Population	County(s)	% of Service Population
Albemarle Sound (12-1)	100 %	Dare	100 %

What was the year-round population served in 2022? 22,766

What was the seasonal population and months served in 2022? (if applicable) 52,000 (Jun Jul Aug)

Has this system acquired another system since last report? No

Water Use by Type

Type of Use	Metered Connections	Metered Average Use (MGD)	Non-Metered Connections	Non-Metered Estimated Use (MGD)
Residential	14,697	2.2000	0	0.0000
Commercial	563	0.3420	0	0.0000
Industrial	0	0.0000	0	0.0000
Institutional	26	0.0120	0	0.0000

How much water was used for system processes (backwash, line cleaning, flushing, etc.)? 1.8000 MGD

Water Sales

Purchaser	PWSID	Average Daily Sold (MGD)	Days Used	Contract MGD	Contract Expiration	Contract Recurring	Required to comply with water use restrictions?	Pipe Size(s) (Inches)	Use Type
Kill Devil Hills	04-28-015	1.3180	365	3.0000	2036	Yes	Yes	12-24	Regular
Manteo	04-28-020	0.2470	365	1.0000	2027	Yes	Yes	12	Regular
Nags Head	04-28-010	1.1680	365	3.5000	2036	Yes	Yes	12	Regular

The contract with Kill Devil Hills and Nags head are much greater than the current demand. It is written in the contract with both Nags Head and Kill Devil Hills that if the facility has exceeded 90% for two consecutive days and the towns have exceeded their allocations, they must pay to add additional treatment trains. Based on the Kill Devil Hills and Nags head LWSP's, their demand will remain less than half of the contract amount through 2060.

3. Water Supply Sources

Monthly Withdrawals & Purchases

	Average Daily Use (MGD)	Max Day Use (MGD)		Average Daily Use (MGD)	Max Day Use (MGD)		Average Daily Use (MGD)	Max Day Use (MGD)
Jan	4.8310	4.4940	May	7.9180	6.0840	Sep	8.8660	6.9200
Feb	4.8550	4.7030	Jun	10.5630	7.2860	Oct	6.7500	5.6740
Mar	5.3220	4.5290	Jul	10.8960	7.2440	Nov	5.6140	4.1010
Apr	6.8350	4.6050	Aug	10.2520	6.1010	Dec	5.2920	5.4810

Ground Water Sources

Name or Number	Average Daily Withdrawal (MGD) MGD	Average Daily Withdrawal (MGD) Days Used	Max Day Withdrawal (MGD)	12-Hour Supply (MGD)	CUA Reduction	Year Offline	Use Type
NRO Well 1	0.2022	182		0.1580			Regular
NRO Well 10	0.8029	211		0.5900			Regular
NRO well 11	0.8684	68		0.3600			Regular
NRO well 12	0.8123	308		0.4390			Regular
NRO well 15	0.7754	140		0.3960			Regular

NRO well 17	0.6027	89	0.3420	Regular
NRO Well 2	0.8049	71	0.3240	Regular
NRO Well 3	0.3665	135	0.4390	Regular
NRO Well 4	0.8892	210	0.3960	Regular
NRO Well 5	0.5916	225	0.4680	Regular
NRO Well 6	0.5115	202	0.2880	Regular
NRO Well 7	0.2507	158	0.3600	Regular
NRO Well 8	0.6056	148	0.4320	Regular
NRO Well 9	0.7634	192	0.6260	Regular
S-10	0.4970	156	0.3430	Regular
S-11	0.0154	11	0.3500	Regular
S-13	0.5750	323	0.4070	Regular
S-14	0.6110	357	0.3890	Regular
S-2	0.6310	322	0.4400	Regular
S-4	0.6300	305	0.4010	Regular
S-5	0.7710	234	0.4420	Regular
S-6	0.6350	265	0.4190	Regular
S-7	0.6030	296	0.3590	Regular
S-8	0.6770	237	0.4430	Regular

Ground Water Sources (continued)

Name or Number	Well Depth (Feet)	Casing Depth (Feet)	Screen Depth (Feet)		Well Diameter (Inches)	Pump Intake Depth (Feet)	Metered?
			Top	Bottom			
NRO Well 1	425	325	325	425	8	90	Yes
NRO Well 10	402	302	302	402	8	120	Yes
NRO well 11	410	105	295	405	8	100	Yes
NRO well 12	435	100	310	430	8	100	Yes
NRO well 15	395	98	290	390	8	140	Yes
NRO well 17	430	100	315	425	8	160	Yes
NRO Well 2	425	325	325	425	8	120	Yes
NRO Well 3	425	325	325	425	8	80	Yes
NRO Well 4	425	325	325	425	8	80	Yes
NRO Well 5	425	325	325	425	8	90	Yes
NRO Well 6	425	325	325	425	8	90	Yes
NRO Well 7	425	325	325	425	8	80	Yes
NRO Well 8	425	325	325	425	8	80	Yes
NRO Well 9	410	310	310	410	8	80	Yes
S-10	250	141	141	192	8	140	Yes
S-11	223	187	187	218	8	120	Yes
S-13	225	176	176	216	8	80	Yes
S-14	200	126	150	200	10	126	Yes
S-2	222	167	167	217	10	100	Yes
S-4	250	170	170	220	8	100	Yes
S-5	235	168	168	218	8	140	Yes
S-6	225	150	150	220	10	100	Yes
S-7	250	165	165	215	8	100	Yes
S-8	250	162	162	212	8	100	Yes

Are ground water levels monitored? Yes, Monthly

Does this system have a wellhead protection program? Yes

The raw water meter failed in 2022 and may have been underestimating volumes. The meter was replaceed in 2023.

Water Purchases From Other Systems

Seller	PWSID	Average Daily Purchased (MGD)	Days Used	Contract MGD	Contract Expiration	Recurring	Required to comply with water use restrictions?	Pipe Size(s) (Inches)	Use Type
Kill Devil Hills	04-28-015	0.0000	0	0.0000	2036	Yes	Yes	8	Emergency
Nags Head	04-28-010	0.0000	0	0.0000	2036	Yes	Yes	12	Emergency

Water Treatment Plants

Plant Name	Permitted Capacity (MGD)	Is Raw Water Metered?	Is Finished Water Ouput Metered?	Source
Dare Co NRO	5.0000	Yes	Yes	Groundwater
Skyco Water Plant	5.0000	Yes	Yes	Groundwater

Did average daily water production exceed 80% of approved plant capacity for five consecutive days during 2022? Yes

If yes, was any water conservation implemented? No

Did average daily water production exceed 90% of approved plant capacity for five consecutive days during 2022? Yes

If yes, was any water conservation implemented? No

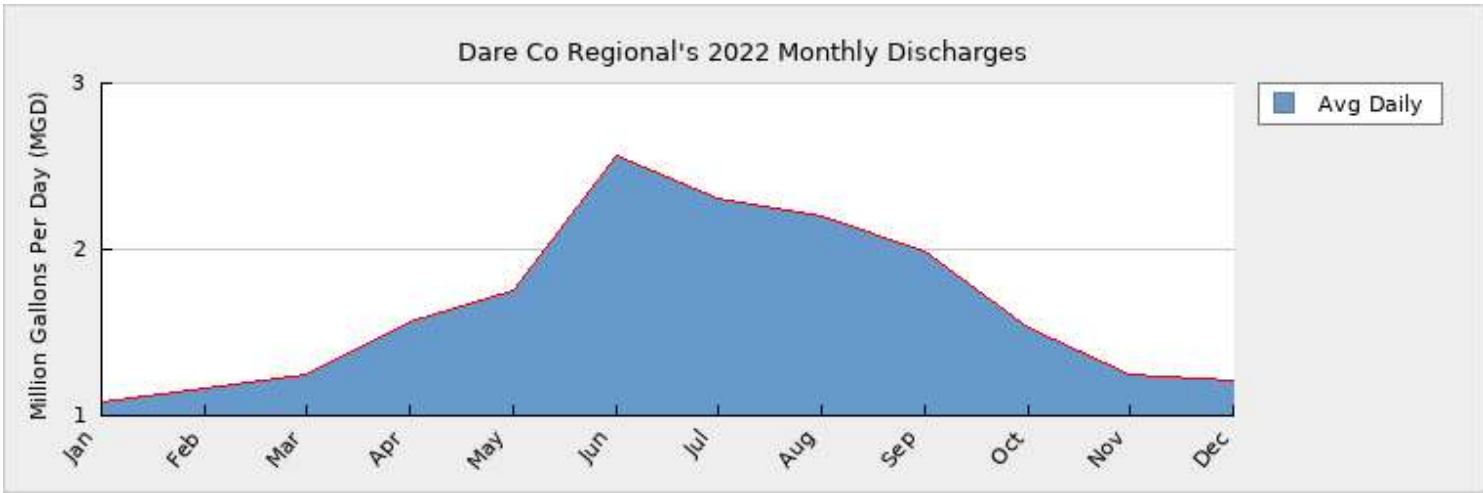
Are peak day demands expected to exceed the water treatment plant capacity in the next 10 years? No

Dare County replaced 3 trains at the North RO plant in the spring of 2021 increasing treatment capacity by .9MGD.

4. Wastewater Information

Monthly Discharges

	Average Daily Discharge (MGD)		Average Daily Discharge (MGD)		Average Daily Discharge (MGD)
Jan	1.0880	May	1.7500	Sep	1.9850
Feb	1.1630	Jun	2.5640	Oct	1.5240
Mar	1.2420	Jul	2.3060	Nov	1.2470
Apr	1.5590	Aug	2.2000	Dec	1.2170



How many sewer connections does this system have? 0

How many water service connections with septic systems does this system have? 20,431

Are there plans to build or expand wastewater treatment facilities in the next 10 years? No

The NPDES permit for the NRO WTP is for concentrate rejection from 75% recovery reverse osmosis treatment plant. The NPDES permit for the Skyco WTP is for an anion exchange backwash water and concentrate rejection for an 85% recovery nanofiltration plant. The concentrate/backwash water from each plant is metered and reported monthly via eDMR to NC DWQ.

Wastewater Permits

Permit Number	Type	Permitted Capacity	Design Capacity	Average Annual Daily Discharge	Maximum Day Discharge	Receiving Stream	Receiving Basin

		(MGD)	(MGD)	(MGD)	(MGD)		
NC0035670	WTP	5.0000	0.6180	0.5040		Unnamed Tributary	Albemarle Sound (12-1)
NC0070157	WTP	0.0000	1.4200	1.1820		002 Atlantic	Albemarle Sound (12-1)

5. Planning

Projections

	2022	2030	2040	2050	2060	2070
Year-Round Population	22,766	23,500	24,000	24,500	26,000	27,500
Seasonal Population	52,000	52,000	52,000	52,000	52,000	52,000
Residential	2.2000	2.1000	2.0000	2.2000	2.4000	2.6000
Commercial	0.3420	0.2600	0.2700	0.2800	0.2900	0.3000
Industrial	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Institutional	0.0120	0.0120	0.0120	0.0120	0.0120	0.0120
System Process	1.8000	1.6000	1.8000	1.8000	1.8000	1.8000
Unaccounted-for	1.2630	1.0768	1.0536	1.1078	1.1620	1.2162

Future Supply Sources

Source Name	PWSID	Source Type	Additional Supply	Year Online	Year Offline	Type
Expand Treatment Plant	04-28-030	Ground	2.0000	2024		Regular

We have the ability to blend up to .4 MGD of raw water while still maintaining quality. The upgrade at the NRO plant brought production up to 5.9 MGD. So with the Raw blend we have the ability for 6.3 MGD. The Skyco plant, which is the connecting plant for the regional system, will be expanded by two trains in 2024/2025. This will provide an additional 1MGD per train.

Demand v/s Percent of Supply

	2022	2030	2040	2050	2060	2070
Surface Water Supply	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Ground Water Supply	9.6110	9.6110	9.6110	9.6110	9.6110	9.6110
Purchases	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Future Supplies		2.0000	2.0000	2.0000	2.0000	2.0000
Total Available Supply (MGD)	9.6110	11.6110	11.6110	11.6110	11.6110	11.6110
Service Area Demand	5.6170	5.0488	5.1356	5.3998	5.6640	5.9282
Sales	2.7330	7.5000	7.5000	7.5000	7.5000	7.5000
Future Sales		0.0000	0.0000	0.0000	0.0000	0.0000
Total Demand (MGD)	8.3500	12.5488	12.6356	12.8998	13.1640	13.4282
Demand as Percent of Supply	87%	108%	109%	111%	113%	116%

The purpose of the above chart is to show a general indication of how the long-term per capita water demand changes over time. The per capita water demand may actually be different than indicated due to seasonal populations and the accuracy of data submitted. Water systems that have calculated long-term per capita water demand based on a methodology that produces different results may submit their information in the notes field.

Your long-term water demand is 97 gallons per capita per day. What demand management practices do you plan to implement to reduce the per capita water demand (i.e. conduct regular water audits, implement a plumbing retrofit program, employ practices such as rainwater harvesting or reclaimed water)? If these practices are covered elsewhere in your plan, indicate where the practices are discussed here. No Changes

Are there other demand management practices you will implement to reduce your future supply needs? Begin a leak detection program to reduce unaccounted for water

What supplies other than the ones listed in future supplies are being considered to meet your future supply needs? Improving the water quality at the NRO plant and the Skyco nanofiltration so we can create an additional 1MGD of water.

How does the water system intend to implement the demand management and supply planning components above? Dare County will fund engineering studies for budgets for plant expansion.

Additional Information

Has this system participated in regional water supply or water use planning? No

What major water supply reports or studies were used for planning?

Please describe any other needs or issues regarding your water supply sources, any water system deficiencies or needed improvements (storage, treatment, etc.) or your ability to meet present and future water needs. Include both quantity and quality considerations, as well as financial, technical, managerial, permitting, and compliance issues: