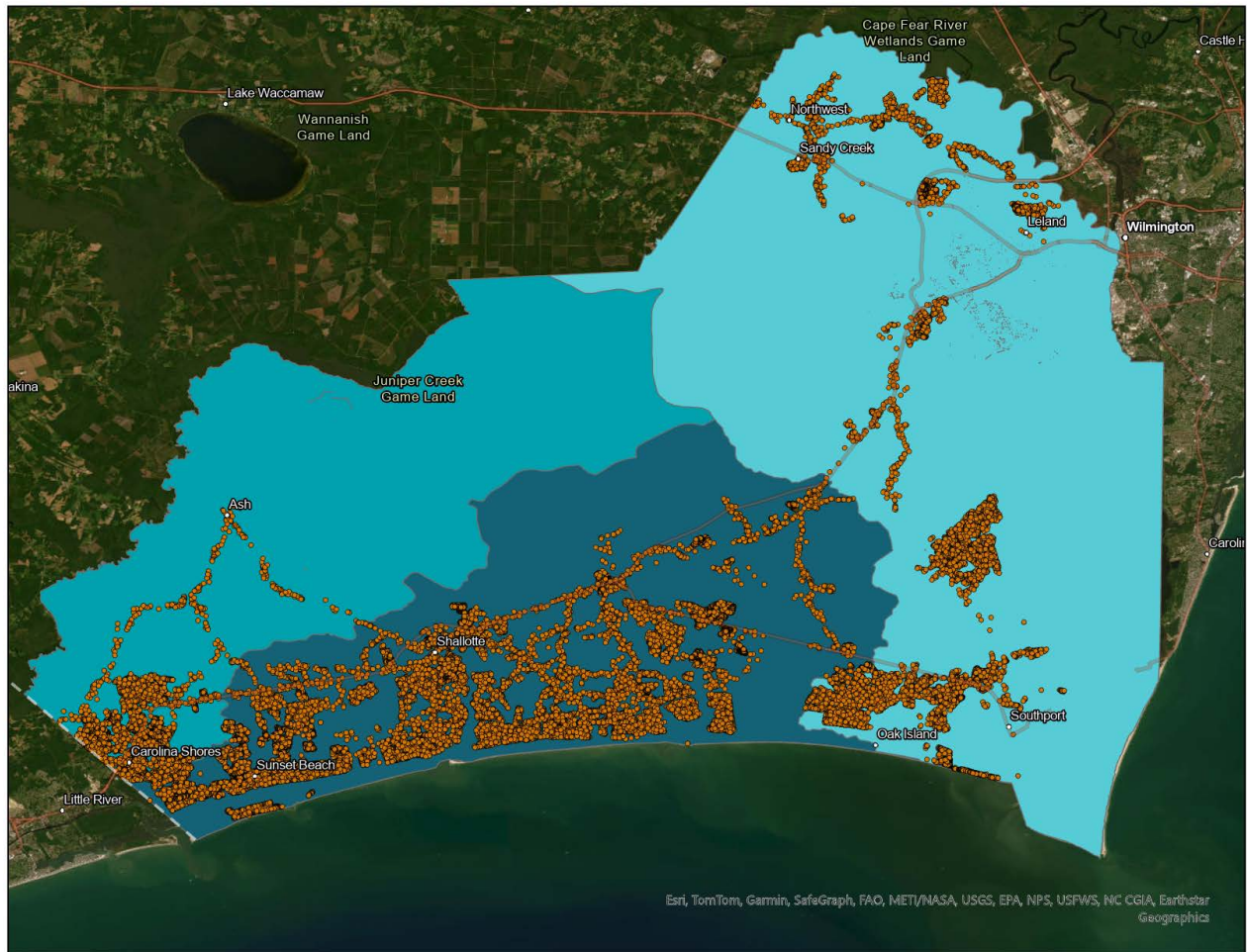


BRUNSWICK COUNTY PUBLIC UTILITIES 2023 INTERBASIN TRANSFER REPORT



BRUNSWICK COUNTY PUBLIC UTILITIES

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SUMMARY

Brunswick County Public Utilities (BCPU) provides water to approximately 56,528 retail and 5 wholesale customers. The five (5) wholesale customers served by the BCPU water system are Bald Head Island, Oak Island, Holden Beach, Ocean Isle Beach, and Southport. Brunswick County owns and operates the water systems in unincorporated towns within the county and provides water directly to individual retail customers in those areas. The County operates two water treatment plants (WTP); the Northwest WTP and the Highway 211 WTP. The Northwest WTP is a 24 million gallon per day (MGD) surface water treatment plant that treats raw water from the Cape Fear River. The 211 WTP is a 6 MGD groundwater water treatment plant that sources its water from groundwater wells.

Brunswick County has a grandfathered surface water transfer capacity of 10.44 MGD. The grandfathered capacity allowed the system to transfer water from the Cape Fear River Basin to the Waccamaw and Shallotte River Basins (each a sub-basin to the major Lumber River Basin). On February 17, 2009, Brunswick County submitted a Notice of Intent to Request an Interbasin Transfer (IBT) Certificate to the Environmental Management Commission (EMC). In that notice the County requested an authorized transfer of 18.35 MGD to the Shallotte River Basin and 0.94 MGD to the Waccamaw River Basin. These transfer amounts were based on a proposed expansion of the Northwest WTP from 24 MGD to 36 MGD and considered population projections through the year 2040. In its final determination on November 26, 2013, the EMC authorized a transfer amount not to exceed a maximum of 17 MGD, calculated as a daily average of a calendar month, from the Cape Fear River Basin to the Shallotte and Waccamaw River Basins.

In 2023, Southeastern North Carolina experienced average rainfall totals leading to overall lower water demands. However, due to the seasonal nature of the County's customer demand, July was the peak month for water production and transfers between river basins (see Figure 1). Average daily water production for July at the Northwest WTP was 16.36 MGD or 68.2 % of the permitted capacity of 24 MGD. This production rate is 21.1% lower than the previous year's peak month value.

Peak month potable water usage in the Cape Fear Basin dropped 38.2%, in large part due to the H2GO service area changing to a different water supply and no longer being a wholesale water customer of Brunswick County. The Shallotte River Basin saw an increase of 10.4%, mainly driven by wholesale customer demands and new retail customers. The Waccamaw River Basin, much like the Cape Fear Basin, saw a substantial drop in water usage during the peak month as usage fell 26.8%. This reduction can be attributed to increased rainfall compared to the previous year.

The Carolina Shores Wastewater Treatment Plant (WWTP) diverted less wastewater to the Shallotte River Basin as only 0.147 MGD was transferred in peak month 2023 as opposed to 0.412 MGD in peak month 2022. At the West Brunswick Water Reclamation Facility (WRF), 0.878 MGD of wastewater was pumped from the Cape Fear River Basin to the Shallotte River Basin for treatment, which was an increase of 26.4% in comparison to the previous year. An estimated

0.204 MGD of treated wastewater from the West Brunswick WRF was pumped back into the Cape Fear River Basin for reuse at local golf courses.

In total, 9.757 MGD was transferred to the Shallotte River Basin in the peak month of 2023. This is slightly lower than last year’s peak month average of 10.181 MGD. In the Waccamaw River Basin 1.061 MGD was transferred. This value is also lower than last year’s peak month value of 1.439 MGD. As previously mentioned, the decrease is attributed to lower water usage due to higher rainfall totals than in 2022.

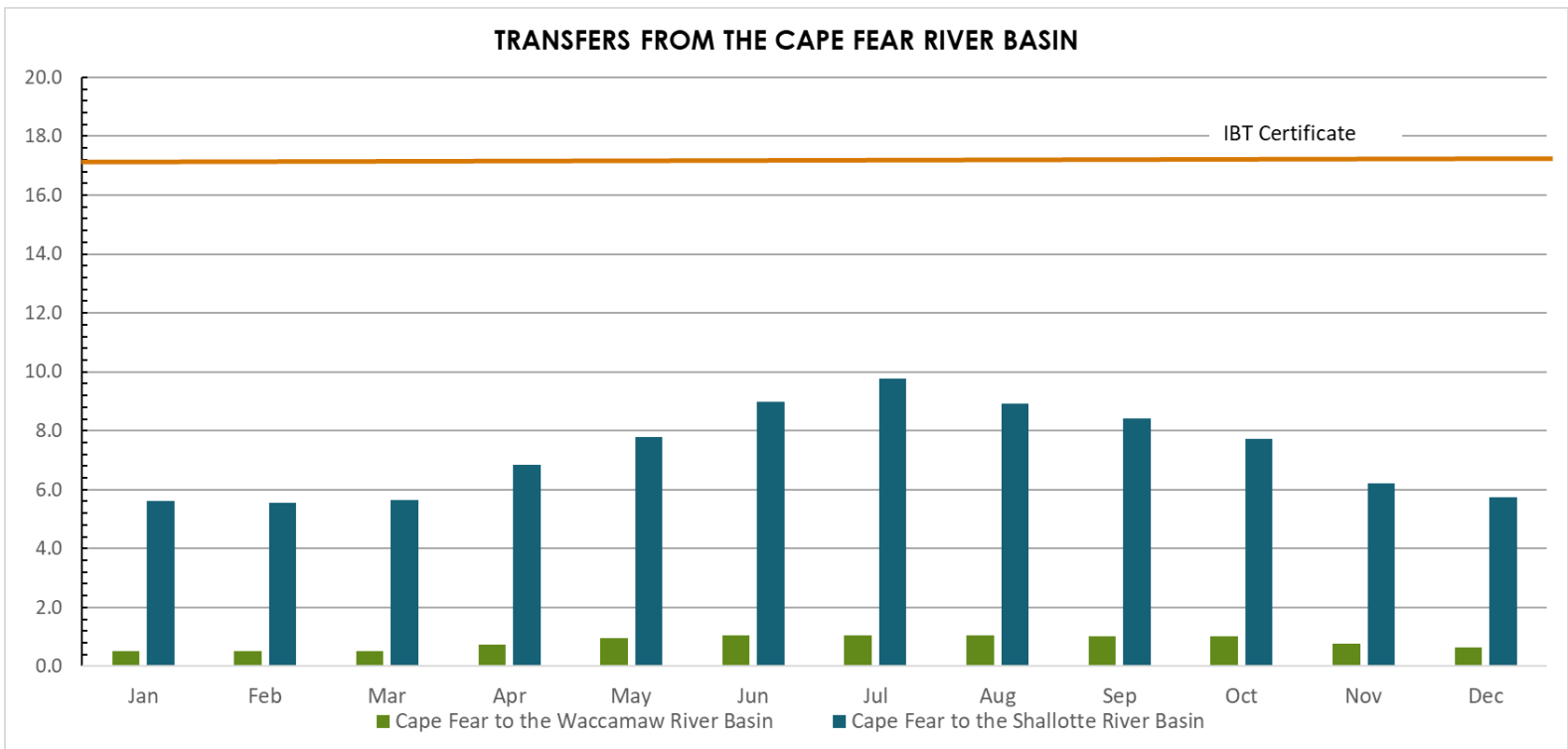


Figure 1: 2023 transfers from the Cape Fear River Basin.

2023 INTERBASIN TRANSFER SUPPORTING DATA

PEAK MONTH - JULY 2023 WATER PRODUCTION AND TRANSFERS BETWEEN RIVER BASINS

All data reported in millions of gallons

PEAK MONTH WTP FLOWS		
	Total Monthly Flow	Daily Average
	<i>Million Gallons</i>	<i>MGD</i>
Northwest WTP (Surface Water)	507.160	16.360
NC 211 WTP (Groundwater)	70.502	2.274
Total Plant Flows	577.662	18.634
Total Accounted Flows	557.134	17.972
Unaccounted for Water	20.528	0.662
NWTP % of Plant Flow to Total Flow	88%	
<i>Surface Water Portion of Accounted Flow</i>	<i>489.137</i>	<i>15.779</i>
CAPE FEAR RIVER BASIN WHOLESALE AND INDUSTRIAL USAGE		
Bald Head Island (100%)	7.134	0.230
Oak Island (50%)	31.454	1.015
Southport (100%)	15.112	0.487
ADM (100%)	30.840	0.995
Duke Energy (100%)	8.154	0.263
Capital Power (100%)	0.000	0.000
Sunny Point (100%)	0.990	0.032
Total Flows	93.685	
<i>Surface Water Portion of Total</i>	<i>93.685</i>	<i>3.022</i>
SHALLOTTE RIVER BASIN WHOLESALE WATER USAGE		
Oak Island (50%)	31.45	1.015
Holden Beach (100%)	27.146	0.876
Ocean Isle Beach (100%)	38.955	1.257
Total Flows	97.555	3.147
<i>Surface Water Portion of Total Flow</i>	<i>85.649</i>	<i>2.763</i>
RETAIL WATER USAGE		
Retail Water Usage for Peak Month	365.894	11.803
<i>Surface Water Portion of Retail Flows</i>	<i>321.238</i>	<i>10.363</i>
RETAIL SURFACE WATER FLOW PER BASIN		
Cape Fear River Basin	103.602	3.342
Shallotte River Basin	181.509	5.855
Waccamaw River Basin	36.127	1.165
SURFACE WATER USAGE BILLED PER BASIN		
Cape Fear River Basin	197.286	6.364
Shallotte River Basin	267.158	8.618
Waccamaw River Basin	36.127	1.165

BILLED SURFACE WATER FLOW PERCENTAGE PER BASIN		
Cape Fear River Basin	35.41%	
Shallotte River Basin	47.95%	
Waccamaw River Basin	6.48%	
NON-REVENUE FLOW ALLOCATION PER BASIN		
<i>Based on billed percentages</i>		
Cape Fear River Basin	7.269	0.234
Shallotte River Basin	9.844	0.318
Waccamaw River Basin	1.331	0.043
REUSE WATER TRANSFERRED BETWEEN BASINS		
Shallotte to Cape Fear	6.324	0.204
WASTEWATER TRANSFERRED (DIVERTED) BETWEEN BASINS PER MONTH		
Cape Fear to Shallotte	27.216	0.878
Waccamaw to Shallotte	4.568	0.147
Shallotte to Waccamaw	0	0
WASTEWATER DISCHARGES		
Cape Fear River Basin		
Northeast Brunswick Regional WWTP	79.729	2.572
Waccamaw River Basin		
Carolina Shores WWTP	14.020	0.452
Shallotte River Basin, Non-Discharge Permits		
Sea Trail WWTP	6.111	0.197
West Brunswick WRF	164.173	5.296
Shallotte WWTP	6.221	0.201
Ocean Isle Beach WWTP	17.982	0.580
Total Shallotte River Basin	194.487	6.274
NET TOTAL SURFACE WATER TRANSFERRED IN PEAK MONTH (JULY)		
Cape Fear to Shallotte River Basin	302.461	9.757
Cape Fear to Waccamaw River Basin	32.890	1.061