Chattahoochee Hydro

BARTLETTS FERRY

Courtenay O'Mara, P.E.

Southern Company

Project Operations

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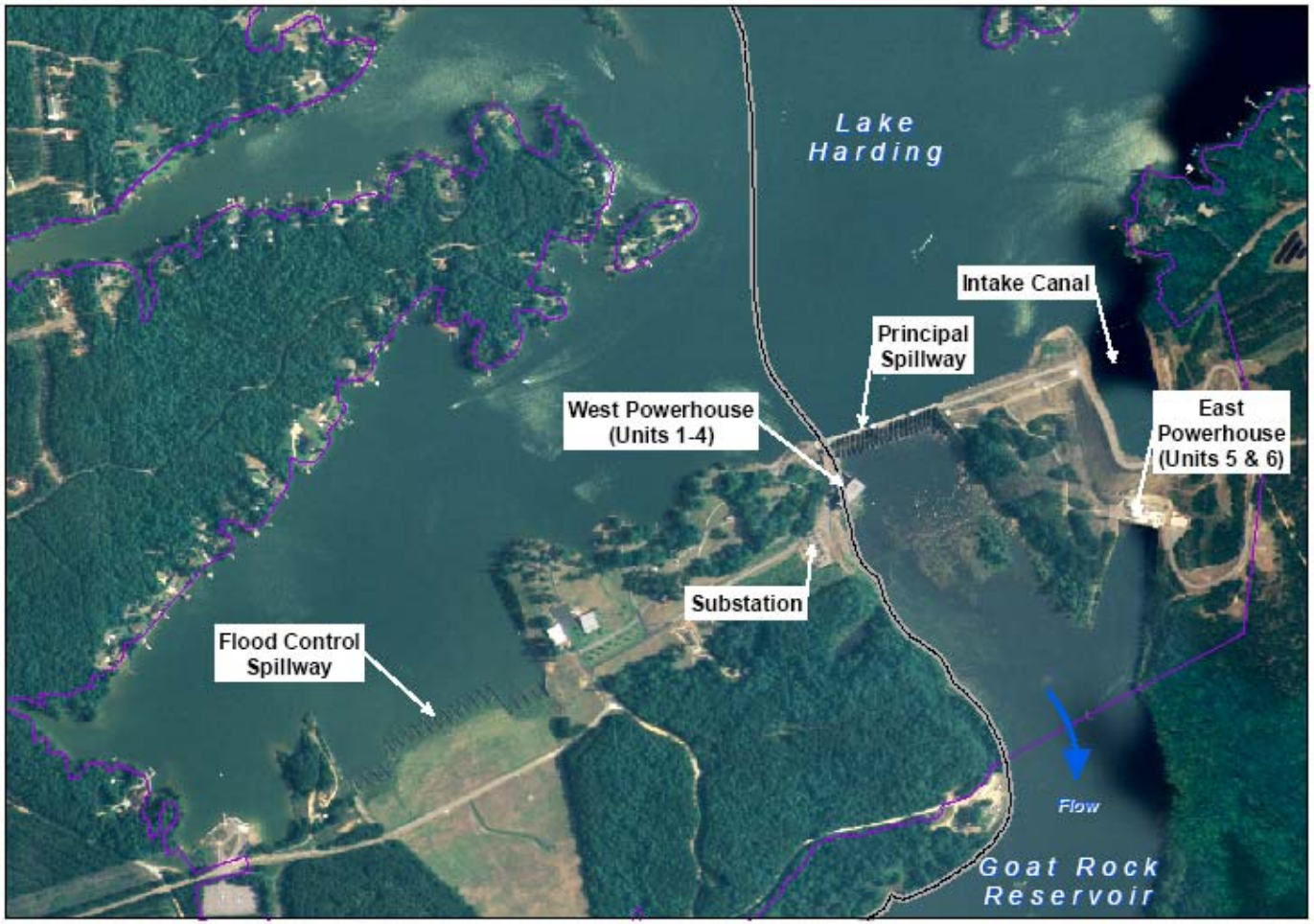

Figure 4
Project Facilities
Bartletts Ferry Project (FERC No. 485)

Chattahoochee Hydro

Bartletts Ferry

Project Statistics

- Chattahoochee River: RM 177.9
- Begin Power Delivery: 1926
- Number of Units: 6
- Production Capacity: 173,000 kW
- Reservoir Area: 5,850 Acres
- Normal Full Pool: 521 feet
- Full Pond Operating Head: 117 feet
- Conservation Storage: 57,600 ac-ft (elevation 510-521)
- Average Inflow: 6,150 cfs (82% from West Point)
- Operation: Modified Run of River

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Chattahoochee Hydro
Bartletts Ferry

Reservoir Storage and Affect on Operations

Small Reservoirs

- No storage
- Run of River

  Inflow=Outflow all the time
- Example:

  Old Mill Sites where steady power was more important than peaking power

  Riverview Dam
- Project Purpose: Steady power or no power

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Bartletts Ferry

Reservoir Storage and Affect on Operations

Medium Reservoirs

- Some Storage
- Water is Stored for Hours or Days
  Inflow ≠ Outflow either Hourly or Daily
- Water is Released for the Week
  Inflow = Outflow on a Weekly Basis
- Example:
  Bartletts Ferry
  (Conservation Storage = 57,600 ac-ft)
- Project Purpose: Power Generation

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Bartletts Ferry

Reservoir Storage and Affect on Operations

Large Reservoirs

- Significant Storage
- Water is Stored Months or Years

  Inflow ≠ Outflow
- Capture Flows During High Flow Periods for use in Low Flow Periods
- Example:

  West Point (Conservation Storage = 306,100 ac-ft)
- Project Purposes: Power Generation, Flood Control, Navigation, and Recreation

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Chattahoochee Hydro

Bartletts Ferry

Storage Volume Comparison

Chattahoochee River

Project	Operator	Conservation Storage Acre-feet	Conservation Storage %
Buford	**Corps**	**1,087,600**	**63.3%**
Morgan Falls	**GPC**	**2,400**	**0.1%**
West Point	**Corps**	**306,100**	**17.8%**
Bartletts Ferry	**GPC**	**57,600**	**3.4%**
Goat Rock	**GPC**	**4,830**	**0.3%**
Oliver	**GPC**	**6,120**	**0.4%**
North Highlands	**GPC**	**140**	**0.0%**
W.F. George	**Corps**	**244,400**	**14.2%**
George W. Andrews	**Corps**	**8,200**	**0.5%**
Sub-Total	**Corps**	**1,646,300**	**95.9%**
Sub-Total	**GPC**	**71,090**	**4.1%**
Total	**All**	**1,717,390**	**100.0%**

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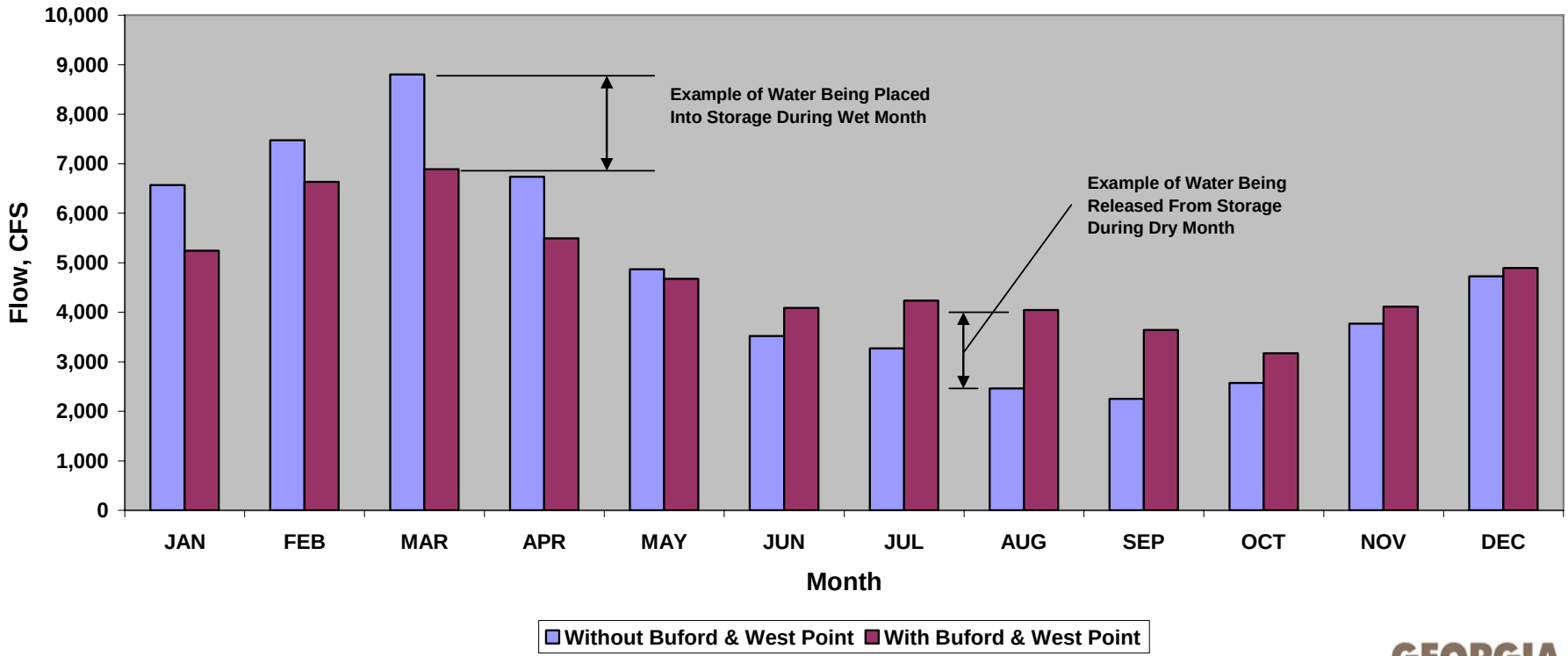
Chattahoochee Hydro
Bartletts Ferry

West Point Monthly River Flows

Influence of Large Storage Projects

West Point
Average Monthly Flows
with and without Buford and West Point
January 76 to July 08



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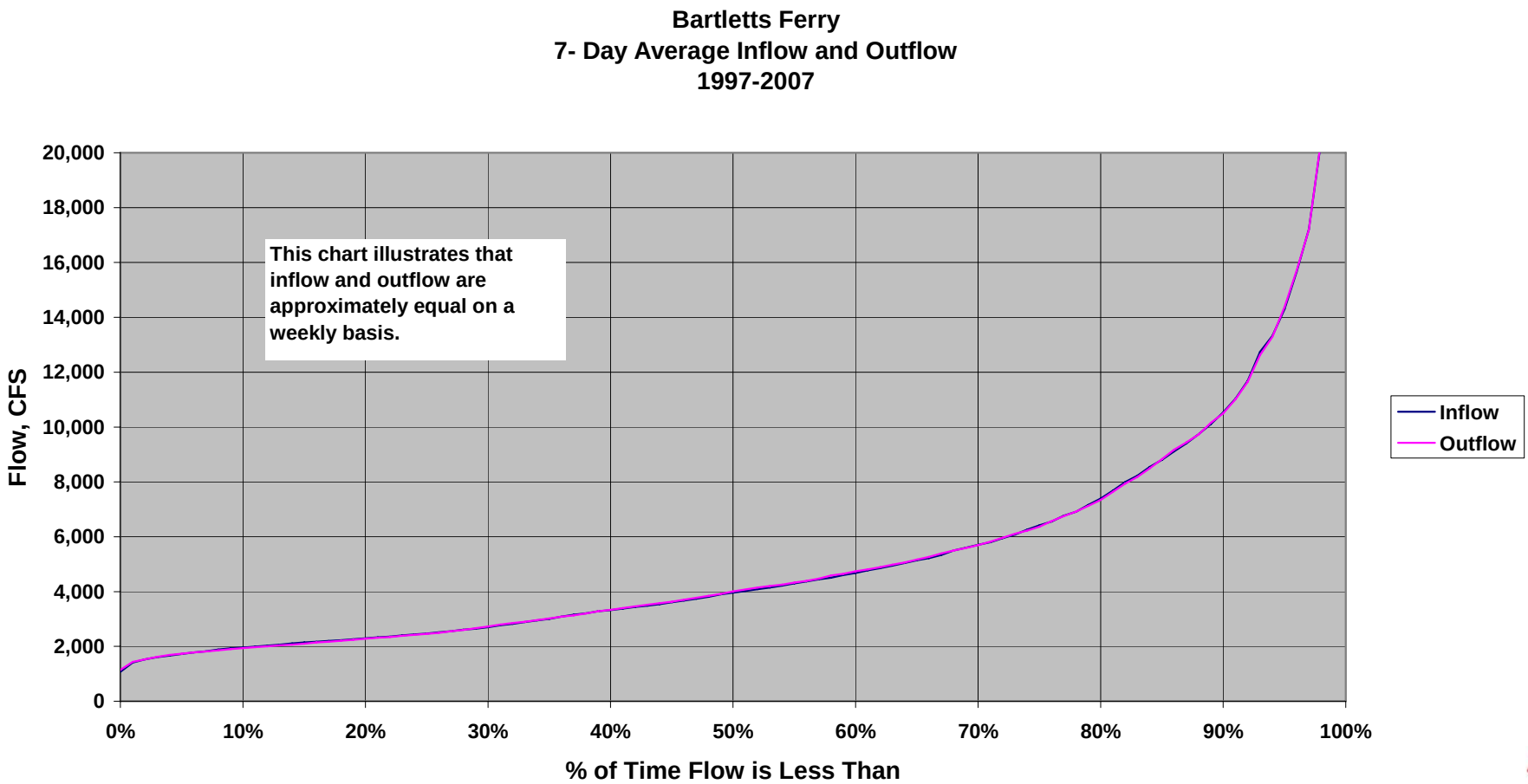
Bartletts Ferry

Bartletts Ferry Weekly Outflow Matches Inflow



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Chattahoochee Hydro
Bartletts Ferry

Bartletts Ferry & West Point Comparison

Bartletts Ferry

- Peaking Power Plant
- Hydraulic Capacity is 24,000 cfs
- Discharges into Goat Rock Reservoir
- Daily Discharges > 500 cfs
  99.8% of time from 1997-2007

West Point

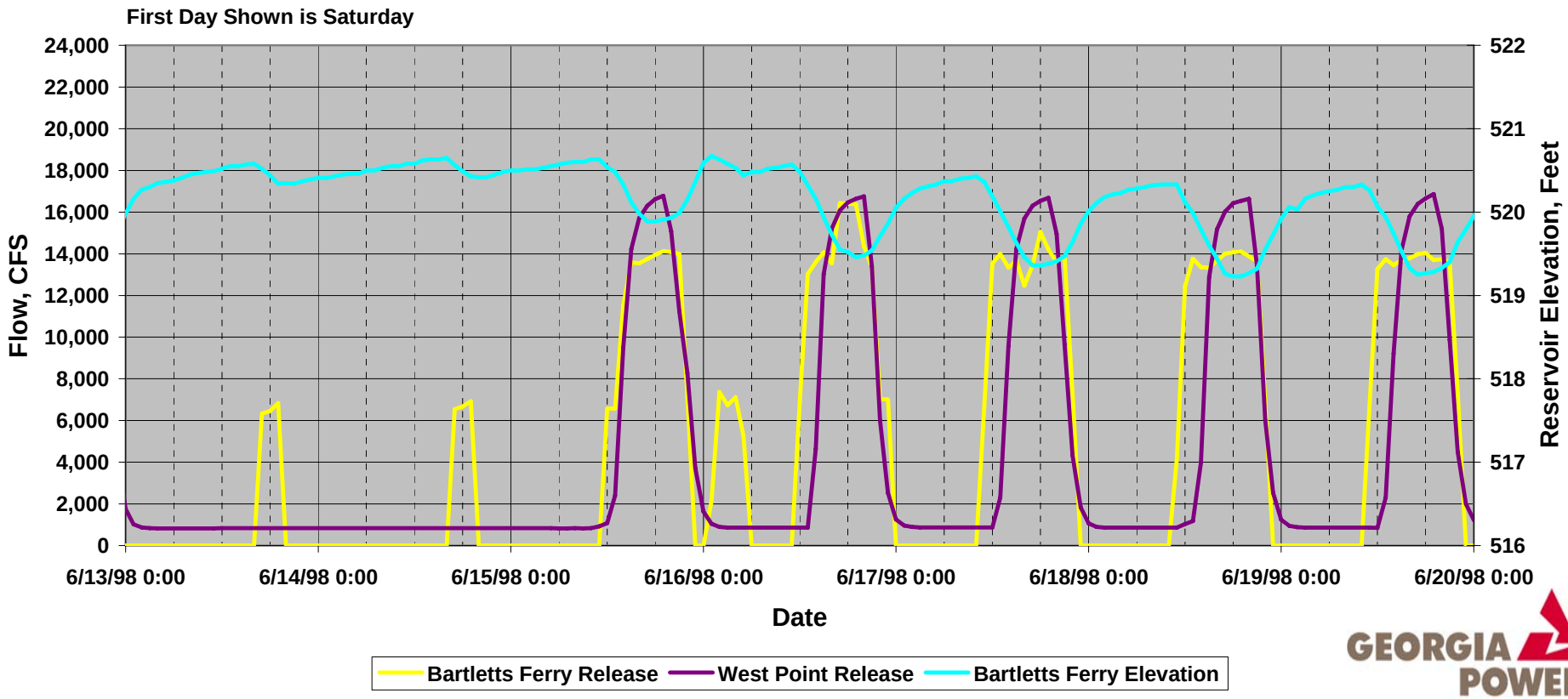
- Peaking Power Plant
- Hydraulic Capacity is 19,000 cfs
- Discharges into Chattahoochee River
- Minimum Flow is 600-800 cfs all the time, typically with no weekend peaking

Chattahoochee Hydro
Bartletts Ferry

Bartletts Ferry Weekly Operations

Medium Inflow

Bartletts Ferry
Example of One Week of Operation
Medium Inflow (4,742 CFS Average Inflow)
With No Weekend West Point Peaking



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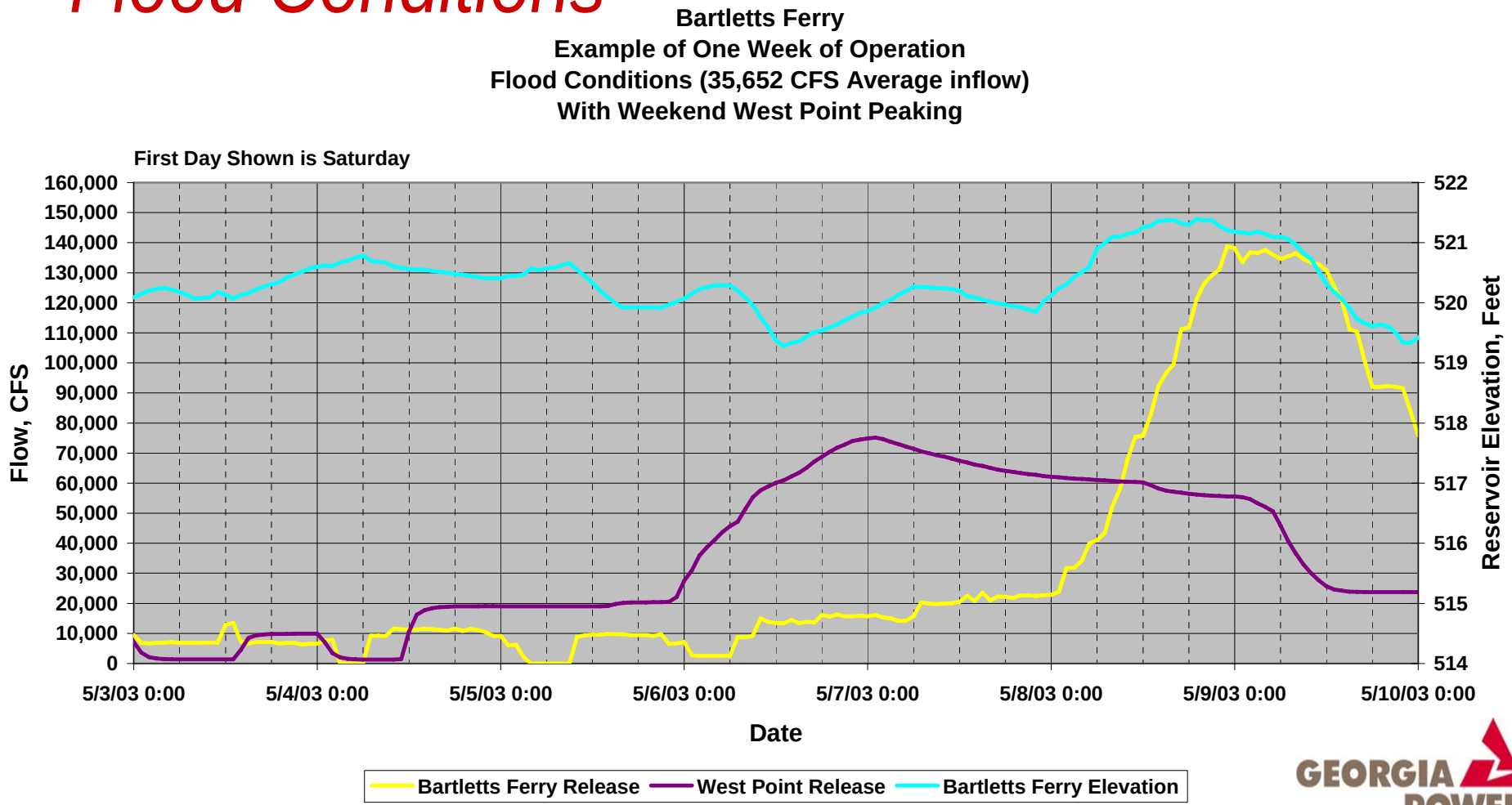
Chattahoochee Hydro
BARTLETTS FERRY

Bartletts Ferry Weekly Operations

Flood Conditions



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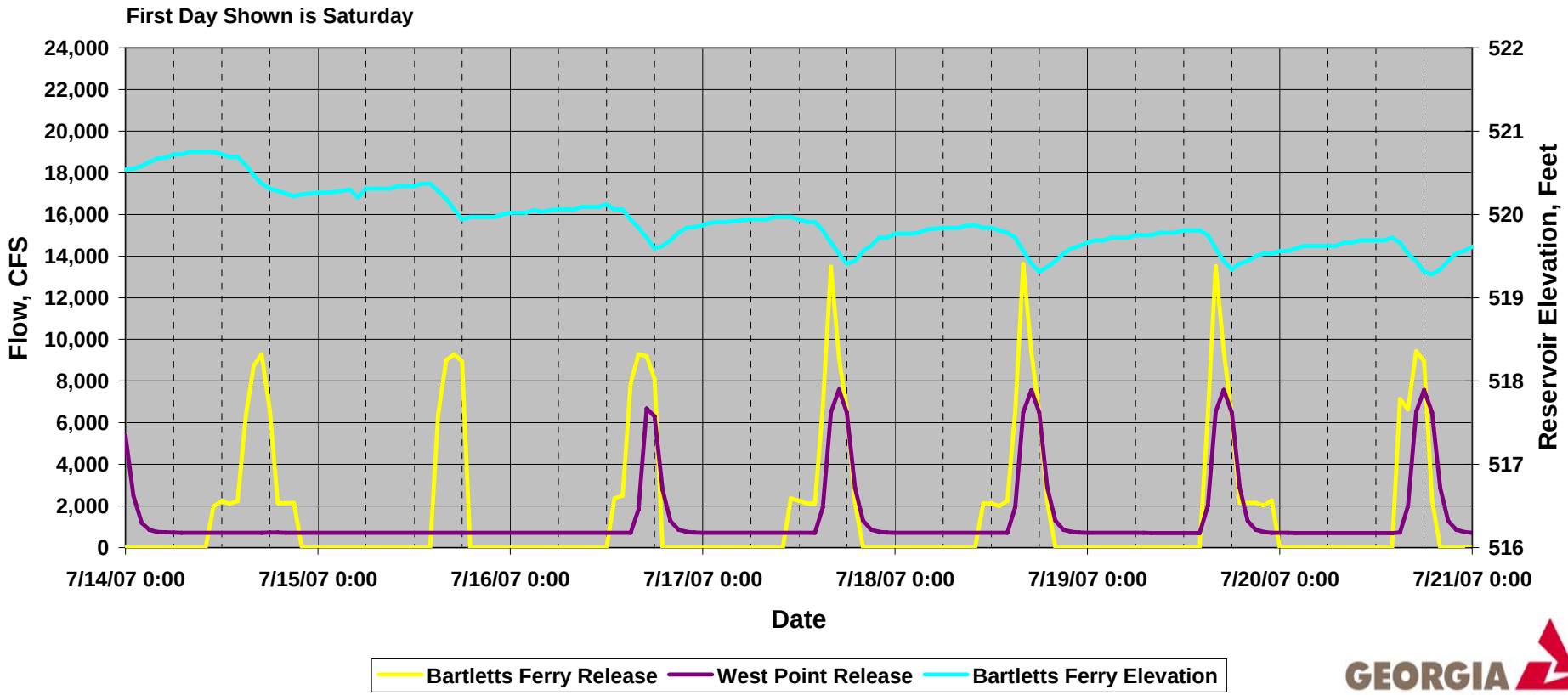
Chattahoochee Hydro
BARTLETTS FERRY

Bartletts Ferry Weekly Operations

Low Inflow

Bartletts Ferry
Example of One Week of Operation
Low Inflow (1,352 CFS Average Inflow)
With No Weekend West Point Peaking



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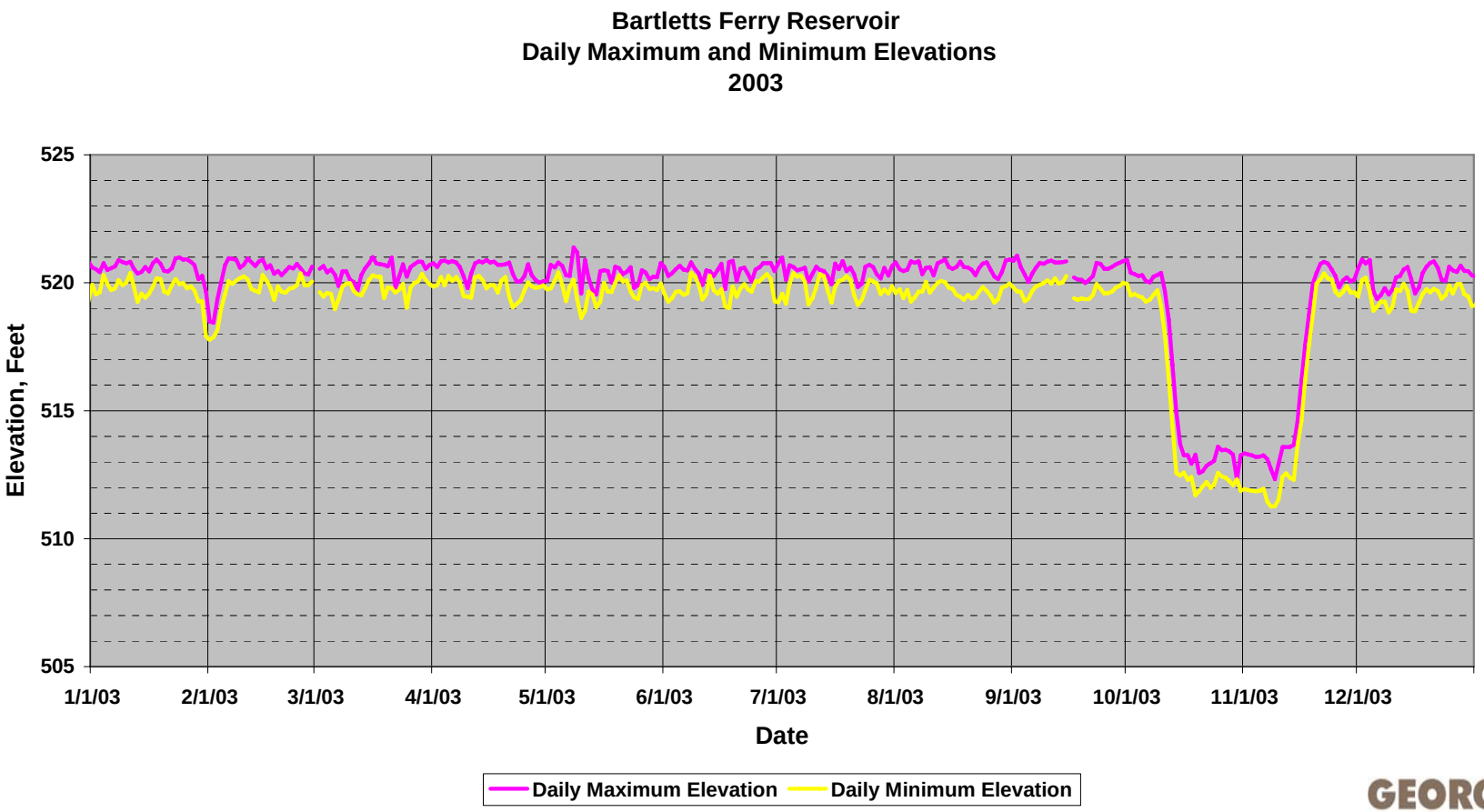
Chattahoochee Hydro
Bartletts Ferry

Reservoir Elevations-Normal Year 2003
With a Fall Maintenance Drawdown



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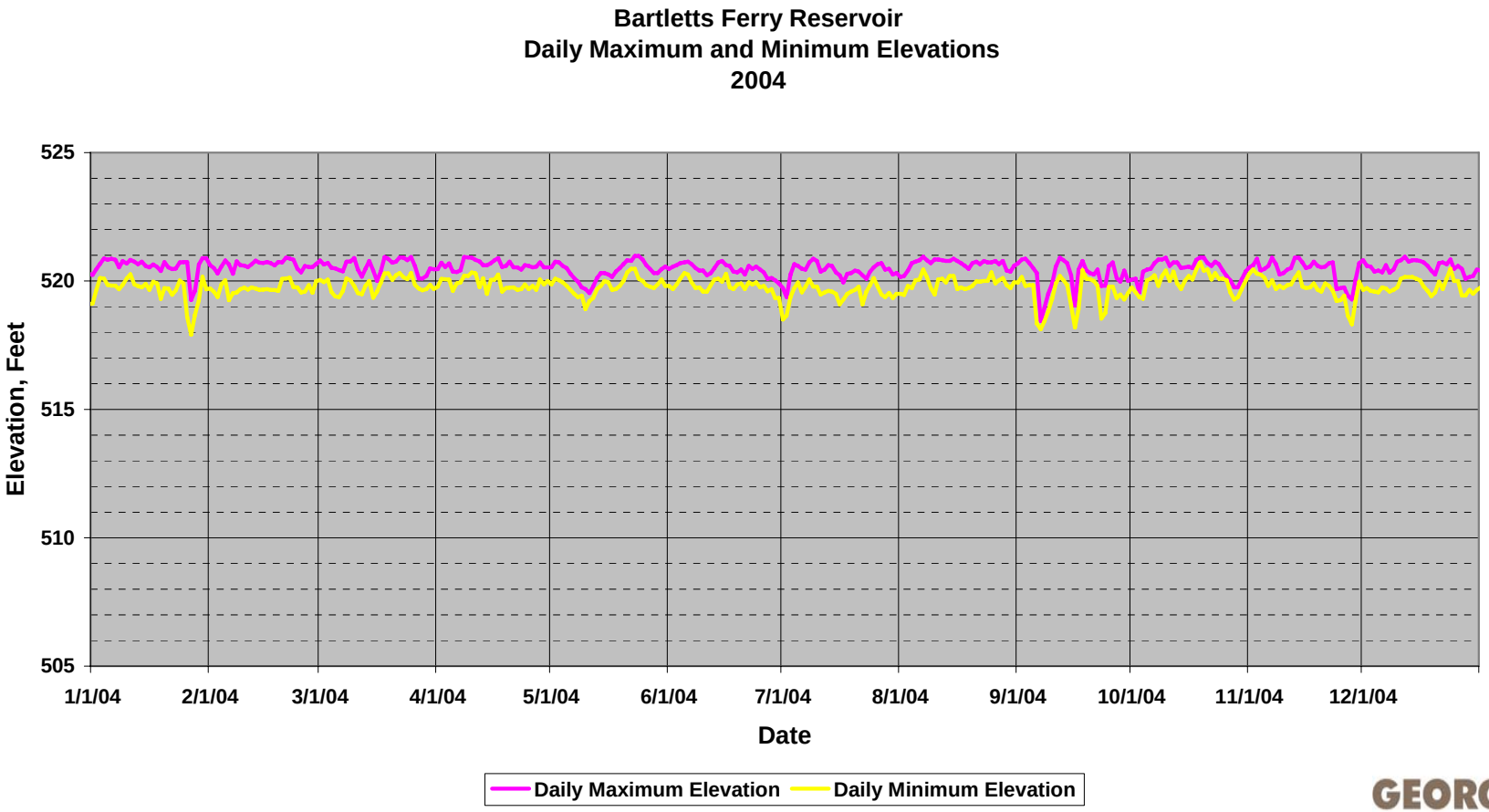
Chattahoochee Hydro
BARTLETTS FERRY

Reservoir Elevations-Normal Year 2004
Without a Fall Maintenance Drawdown



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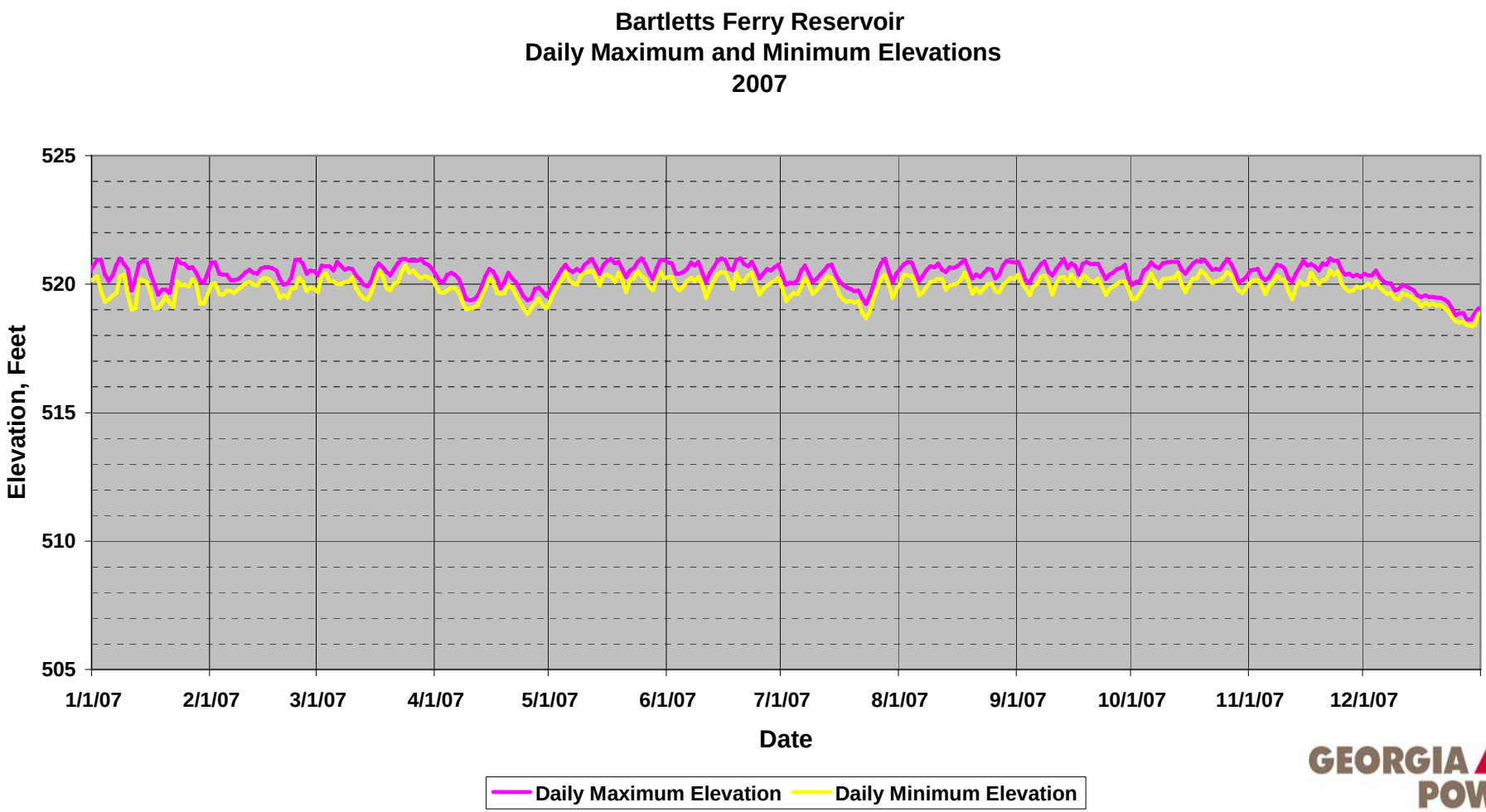
Bartletts Ferry

Reservoir Elevations-Drought 2007

2007 – 2nd Worst Drought of Record at West Point Gage



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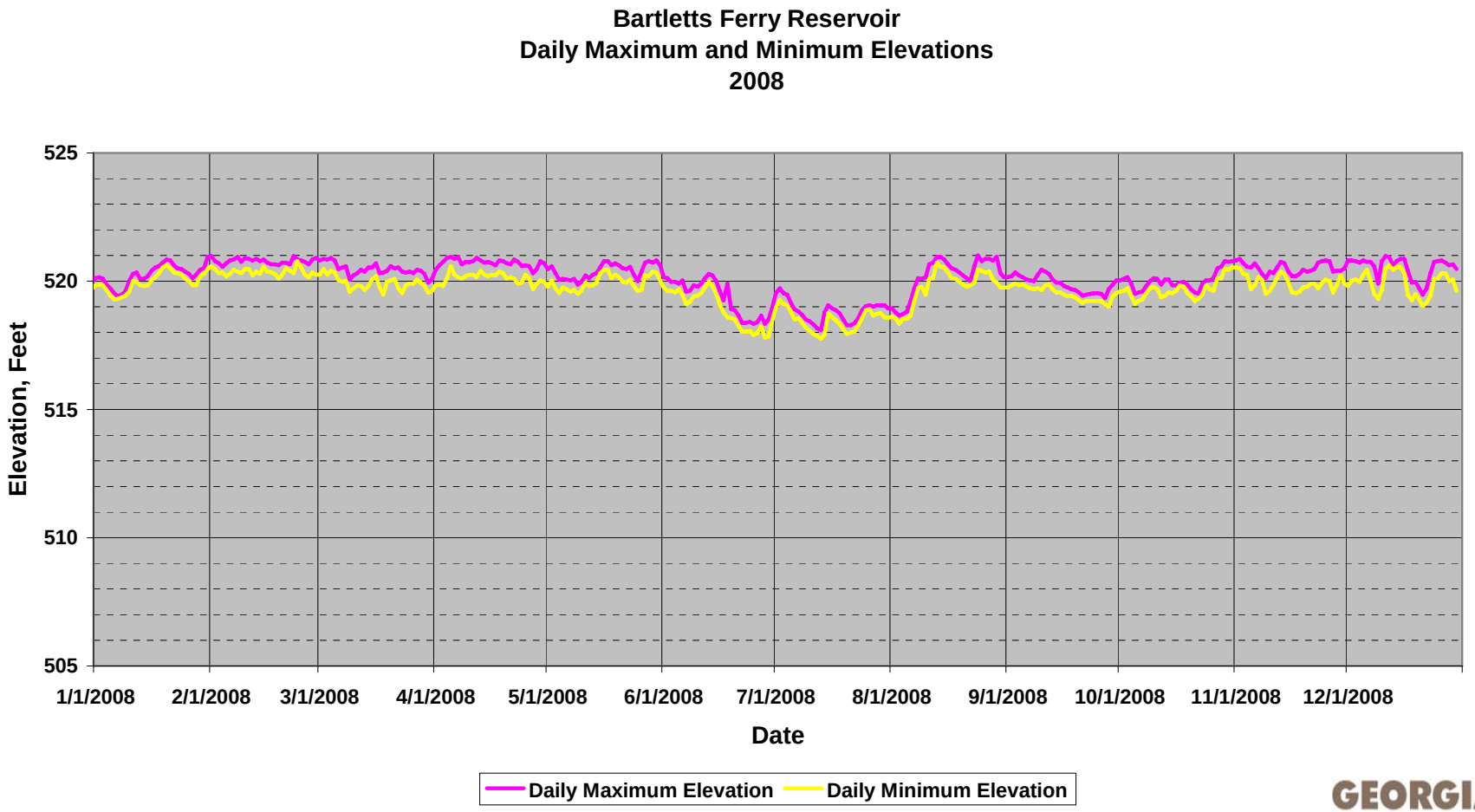
BARTLETTS FERRY

Reservoir Elevations-Drought 2008

2008 – Worst Drought of Record at West Point Gage



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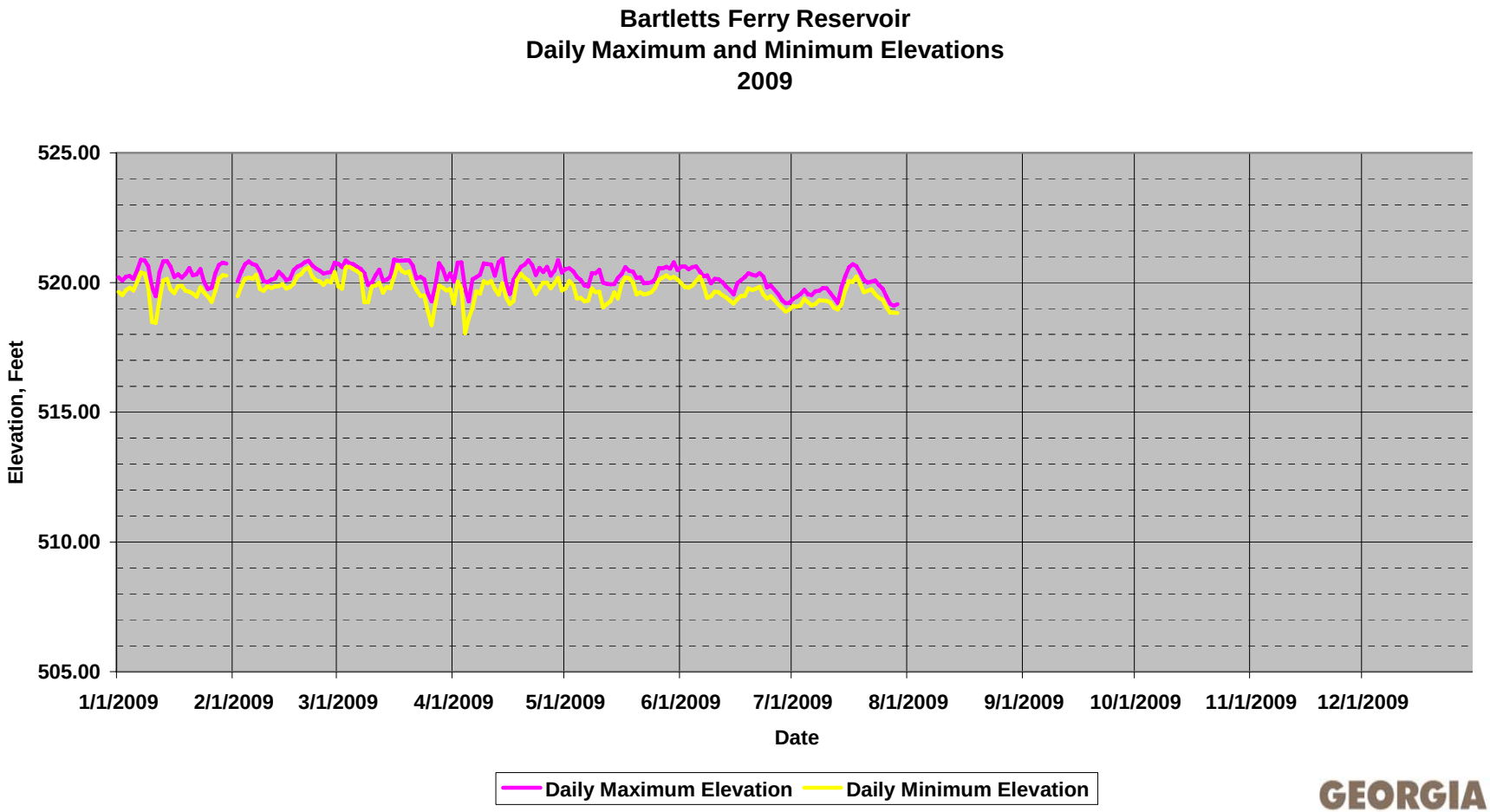
Bartletts Ferry

Reservoir Elevations-2009



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Chattahoochee Hydro

Bartletts Ferry

Bartletts Ferry Operations

- Medium Sized Reservoir Built for Power Generation
- Bartletts Ferry modifies flows on an hourly and daily basis, but passes 100% of its inflow on weekly basis
- No minimum flow – Bartletts Ferry discharges directly into Goat Rock reservoir and not the river
- Reservoir elevations remain between 519-521 more than 99% of the time when fall maintenance drawdowns are excluded
- Drought of 2008 resulted in elevations below 519 11.8 % of time versus 1.4% of time for 1997-2007.
- Bartletts Ferry operations strongly influenced by West Point operations

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