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FY05 Oso Creek/Oso Bay Project

Bacteria Monitoring



Oso Creek/Oso Bay TMDL Stakeholders Meeting

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Sampling Stations

- **Ambient**
 - Historical
 - Representative of bay/creek system
- **Source Assessment (after rainfall)**
 - Sanitary survey to identify potential sources

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Ambient – Oso Creek

- 18499 Oso Creek at SH 44
- 18501 W. Oso Creek at FM 665
- 18500 Oso Creek at FM 665
- 13029 Oso Creek SW of CC (FM 763)
- 16712 Oso Creek W of SH 286 (Elliott Landfill)
- 13028 Oso Creek South of CC (SH 286)
- 13027 Oso Creek at FM 2444 S of CC
- 13026 Oso Creek at Yorktown Bridge



Oso Bay

- 13440 Oso Bay at Padre Island Drive (SH 358)
- 13441 Oso Bay at Hans Suter
- 13442 Oso Bay at (Ocean Drive) CC Bay



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Source Assessment

- **Urban storm water run-off**
- **Waste water treatment plants**
- **Rural communities**
 - **Septic systems**
 - **Colonias**
- **Animal (Livestock) – other sources**
e.g. pet waste, bird
- **Agriculture**

Source Assessment

- **Downstream from WWTPs**
 - Oso Bay adjacent to Oso WWTP discharge (S1)
 - Robstown at SH 77 (WWTP ditch) (S7)
- **Landfill runoff (S8)**
- **Rural community**
 - Rose Acres ditch SH665 (S9)
 - London community (animal) 2444 (S10)

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- **Livestock**
 - Glen Oak ditch (Flour Bluff) (S5)
- **Urban runoff**
 - Cedar Pass ditch (S2)
 - Rodd Field ditch (S6)
 - CR 40 near US 77 ditch (S3)
- **Agriculture**
 - CR 55 near 2444 (S4)
- **Oso golf course (S11)**

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Sampling Frequency - revised

- **Ambient:**
 - Weekly for 3 months
 - After 3 rainfall events – 3-4 times (approx. 24 hr intervals)
- **Targeted:**
 - After 3 rainfall events – 3 times (approx. 24 hr intervals)

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Sampling Parameters

- **Water for bacteria analysis – enterococci (two samples per station)**
- **Field observations**
 - visual appearance of the water
 - water use
 - weather
 - flow severity
 - days since last precipitation event - NWS data.

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**– Field physicochemical parameters:
(*SWQM Proc., Vol 1* (RG-415, Dec. 2003))**

- **By Multiprobe Instrument:**
 - dissolved oxygen (PC 00300)
 - water temperature (PC 00010)
 - specific conductance (PC 00094)
 - pH (PC 00400)
 - salinity (PC 00480)
- **Secchi disk transparency (PC 00078)**
- **Instantaneous flow measurement (PC 00061) (not at tidal stations).**
- **Flow estimates if field conditions do not allow for flow measurement (PC 74069).**

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Bacteria Analysis

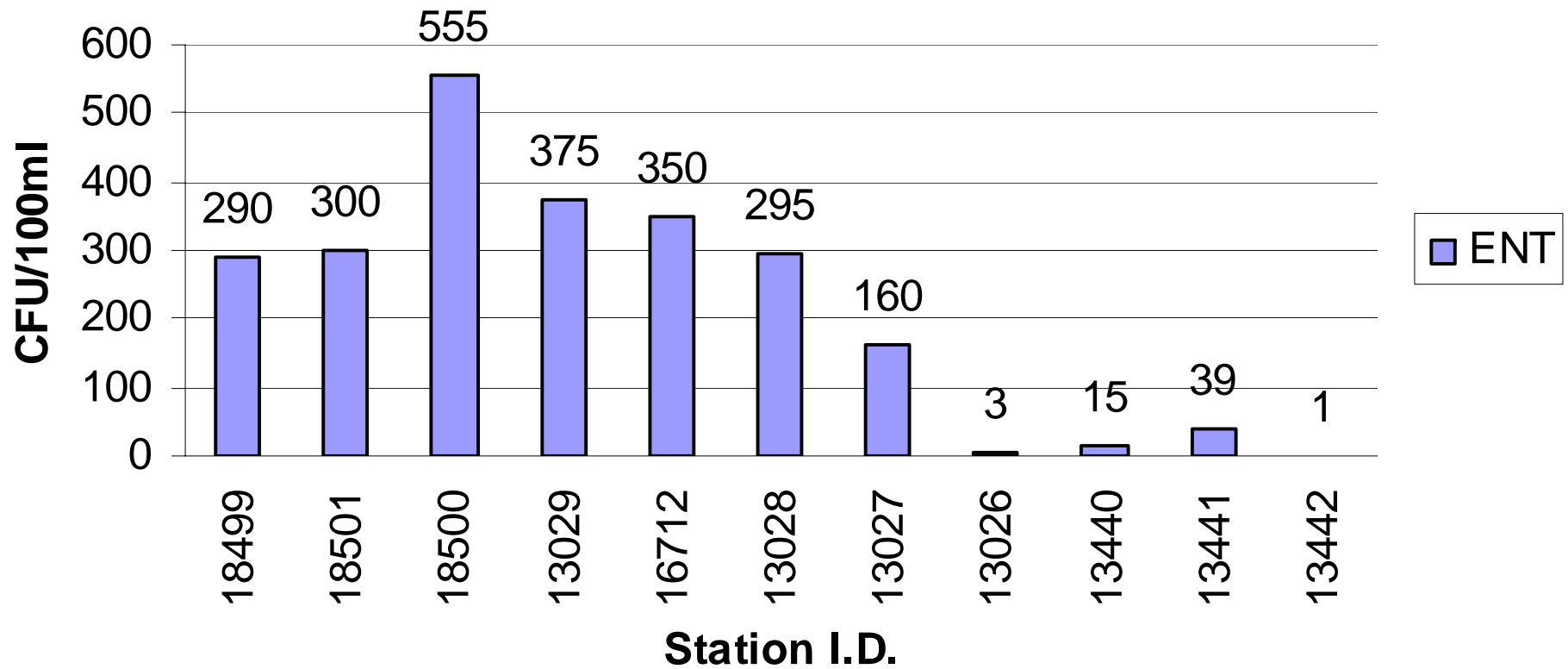
- **Enterococci**
 - Residents of intestinal tracts so indicator of fecal contamination
 - Recommended by EPA (1986) for marine waters and as an alternative to *E. coli* for freshwaters
 - Standards for recreational waters, based on counts
 - EPA Method 1600 Enterococci

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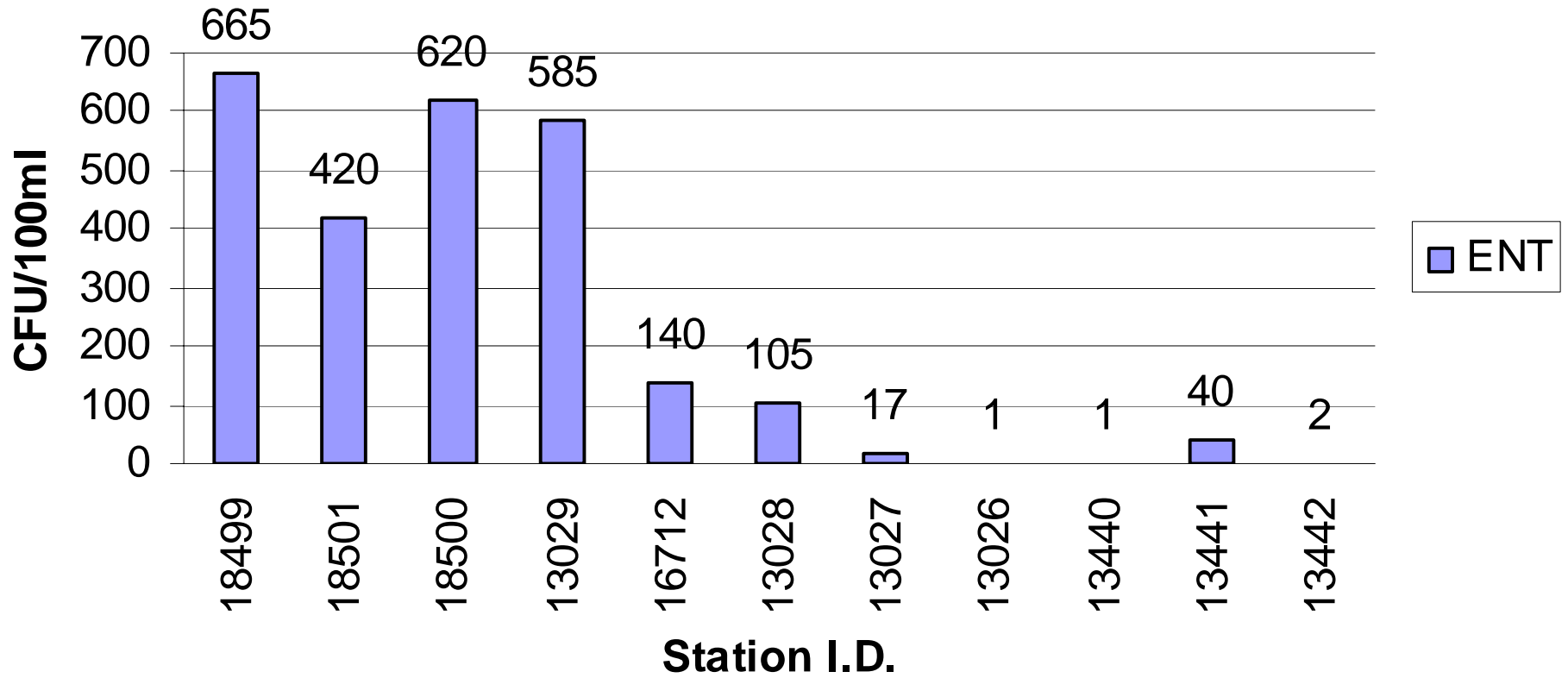
Initial Enterococcus Results

- Ambient dry weather sampling weekly from 05/19/05
- Rainfall event 06/01/05 (Raining 5/30-5/31/05)

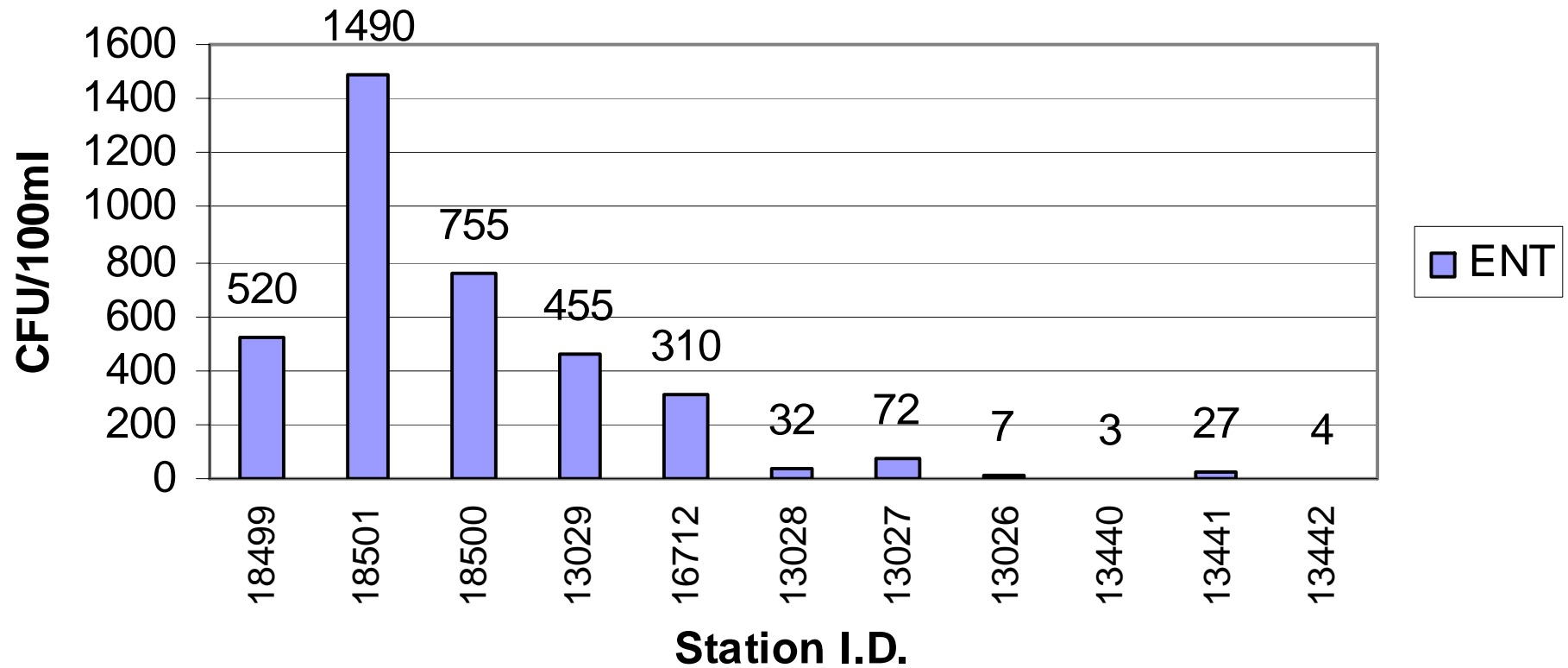
Event 5/19/05 Stream Order



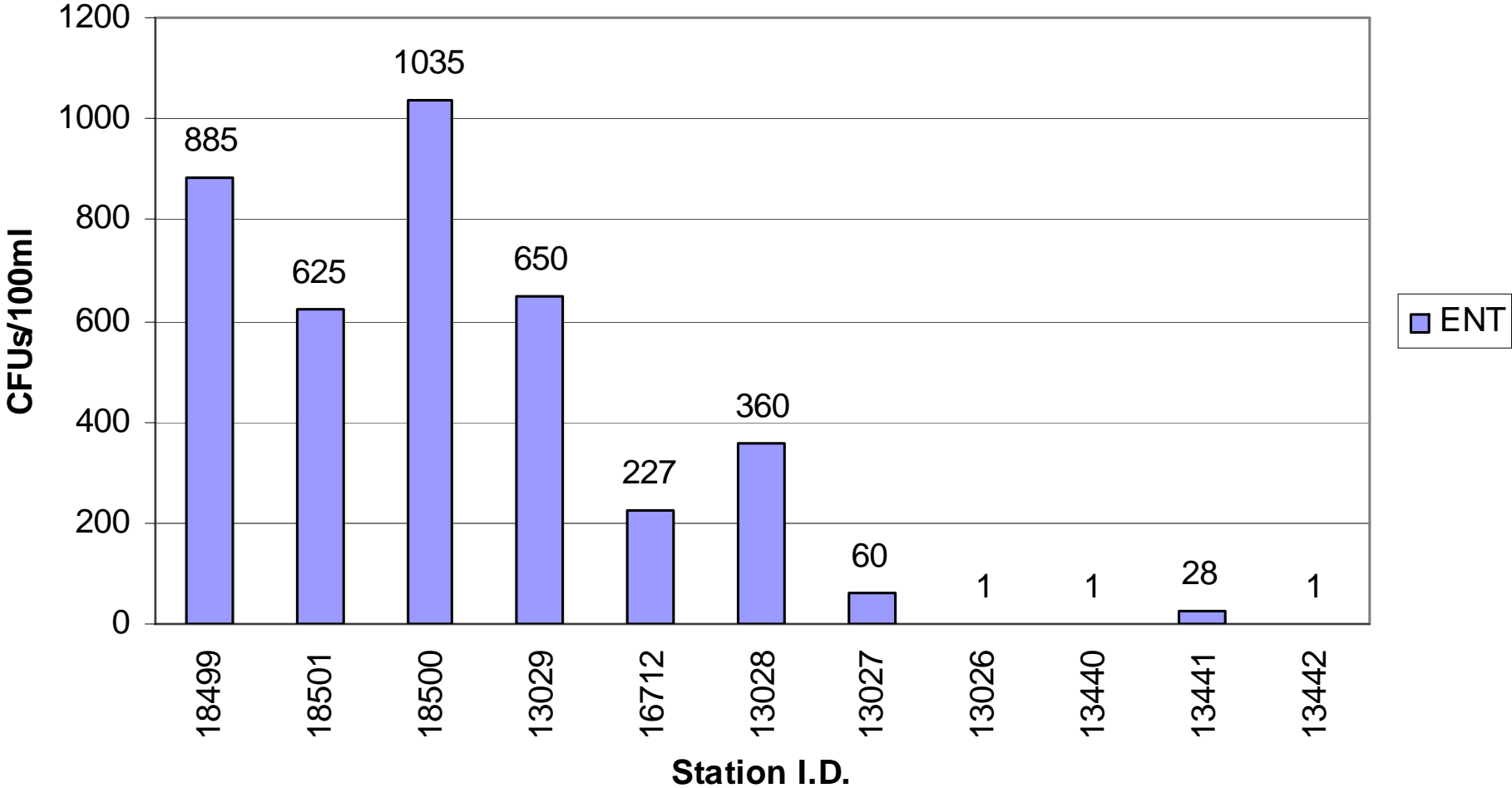
Event 5/26/05 Stream Order



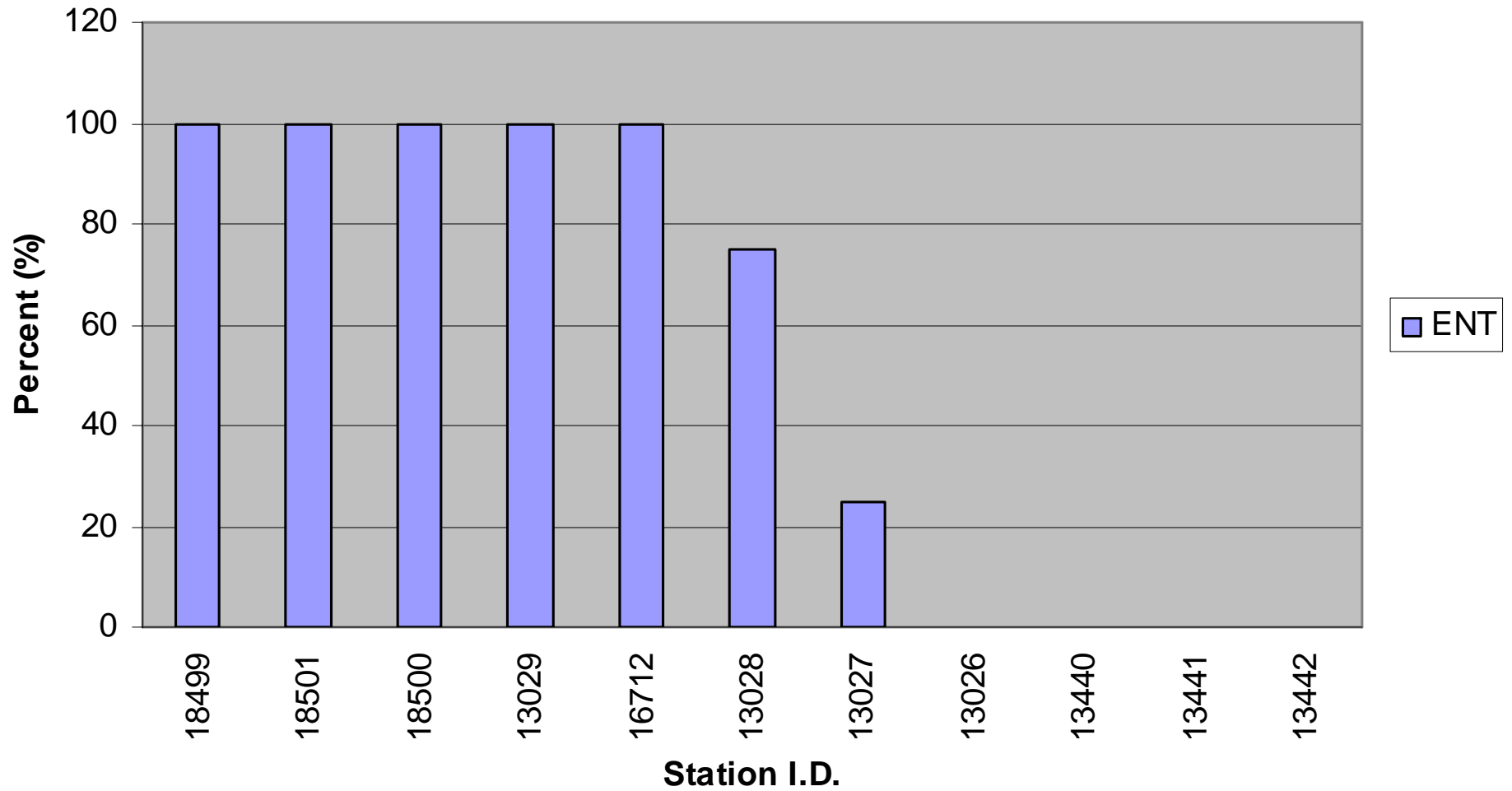
Event 6/9/05 Stream Order



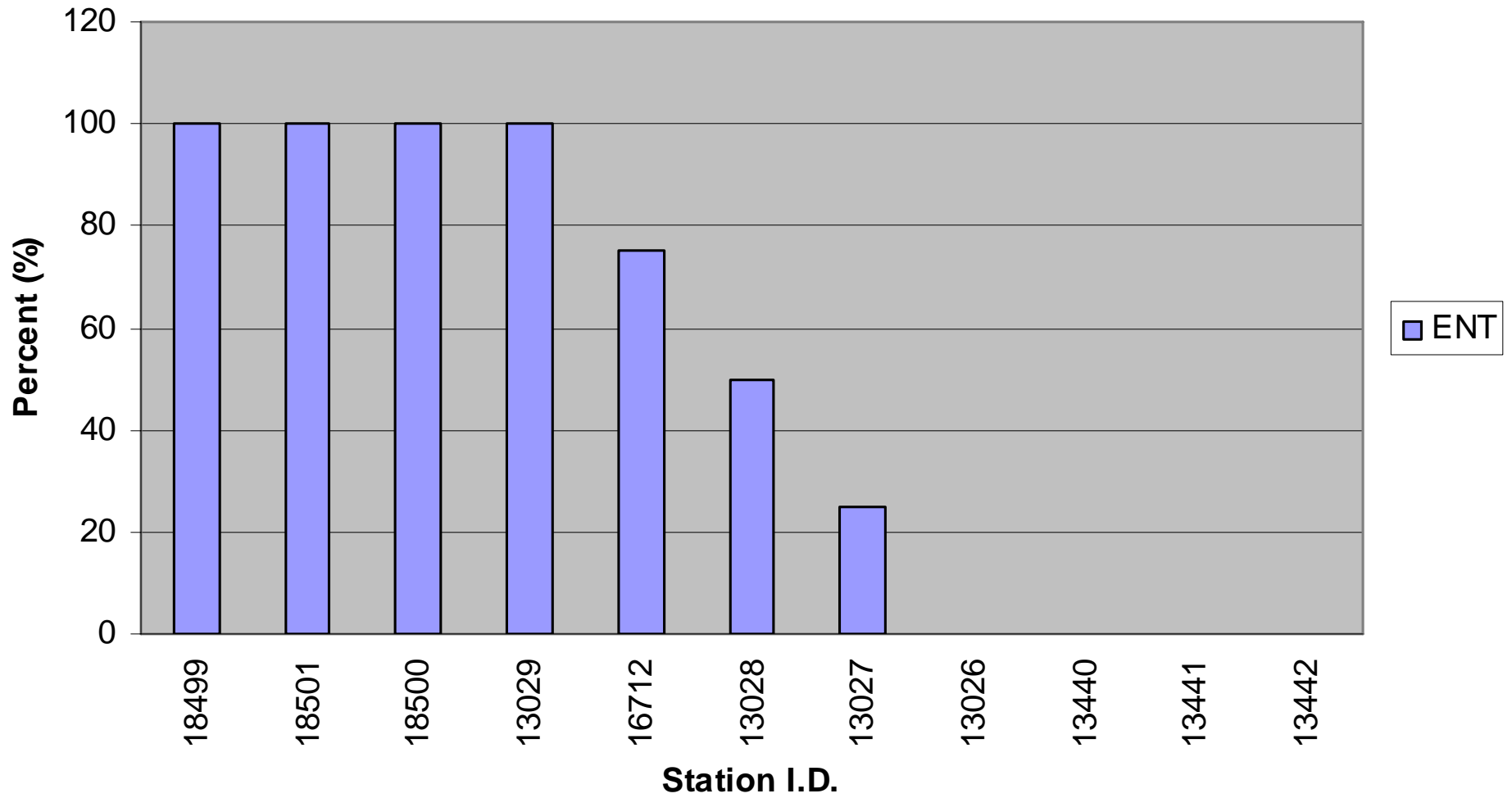
Event 6/16/05 Stream Order



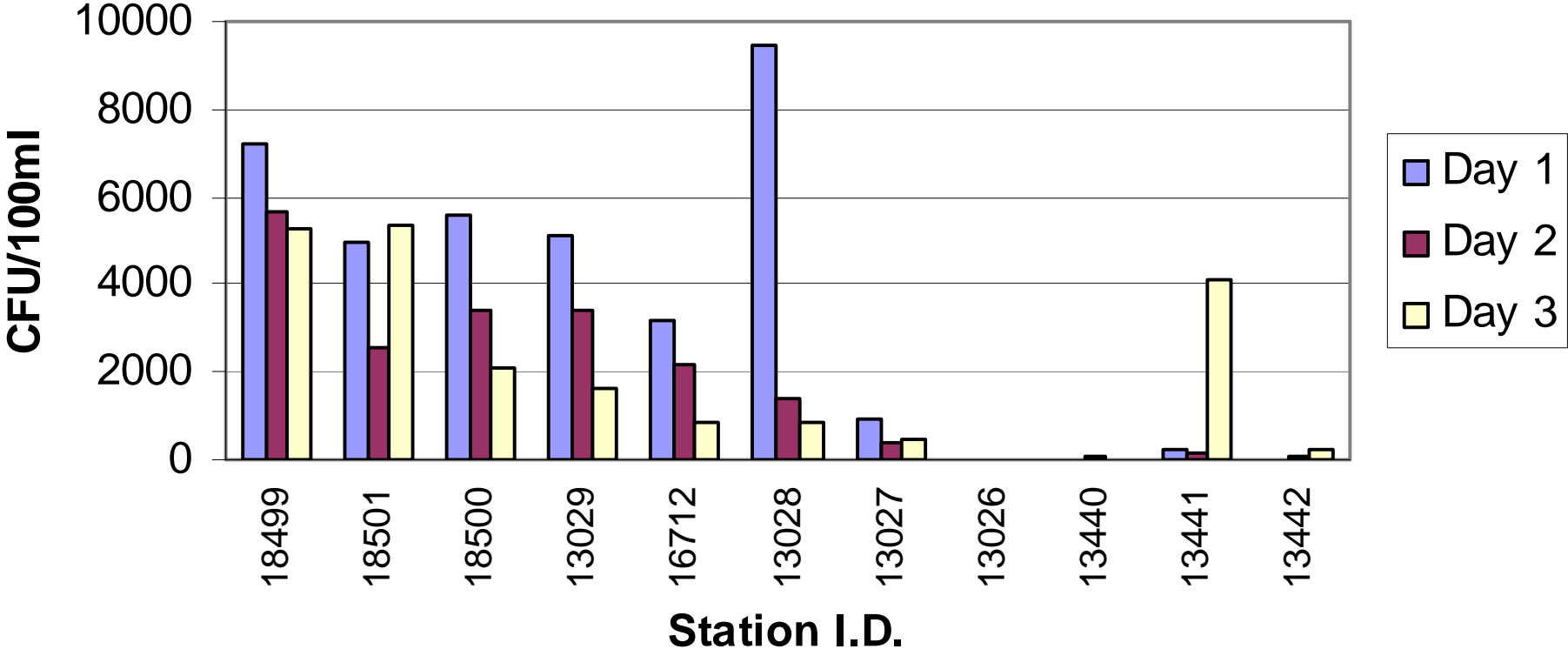
% Exceed Dry Weather (104 CFU)



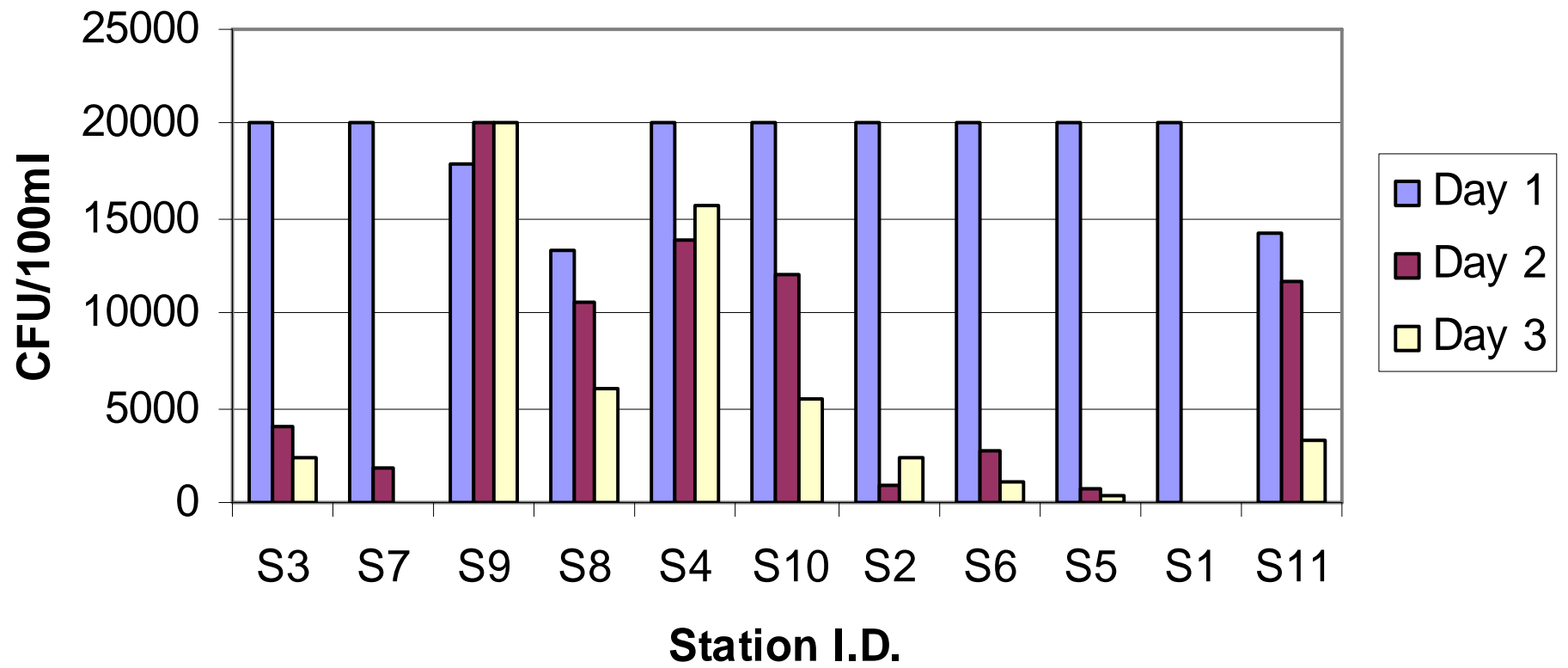
% Exceed Dry Weather (158 CFU)



Rain Event Ambient Stations



Rain Event Targeted Stations



% Exceed Wet Weather (104 cfu/100 ml)

