

Avian Predation on Juvenile Salmonids in the Lower Columbia River

Project No. 199702400

USGS - Oregon Cooperative Fish & Wildlife Research Unit

Real Time Research, Inc.

Oregon State University

Piscivorous Waterbirds on the Columbia River



Other Colonial Waterbirds on the Columbia River

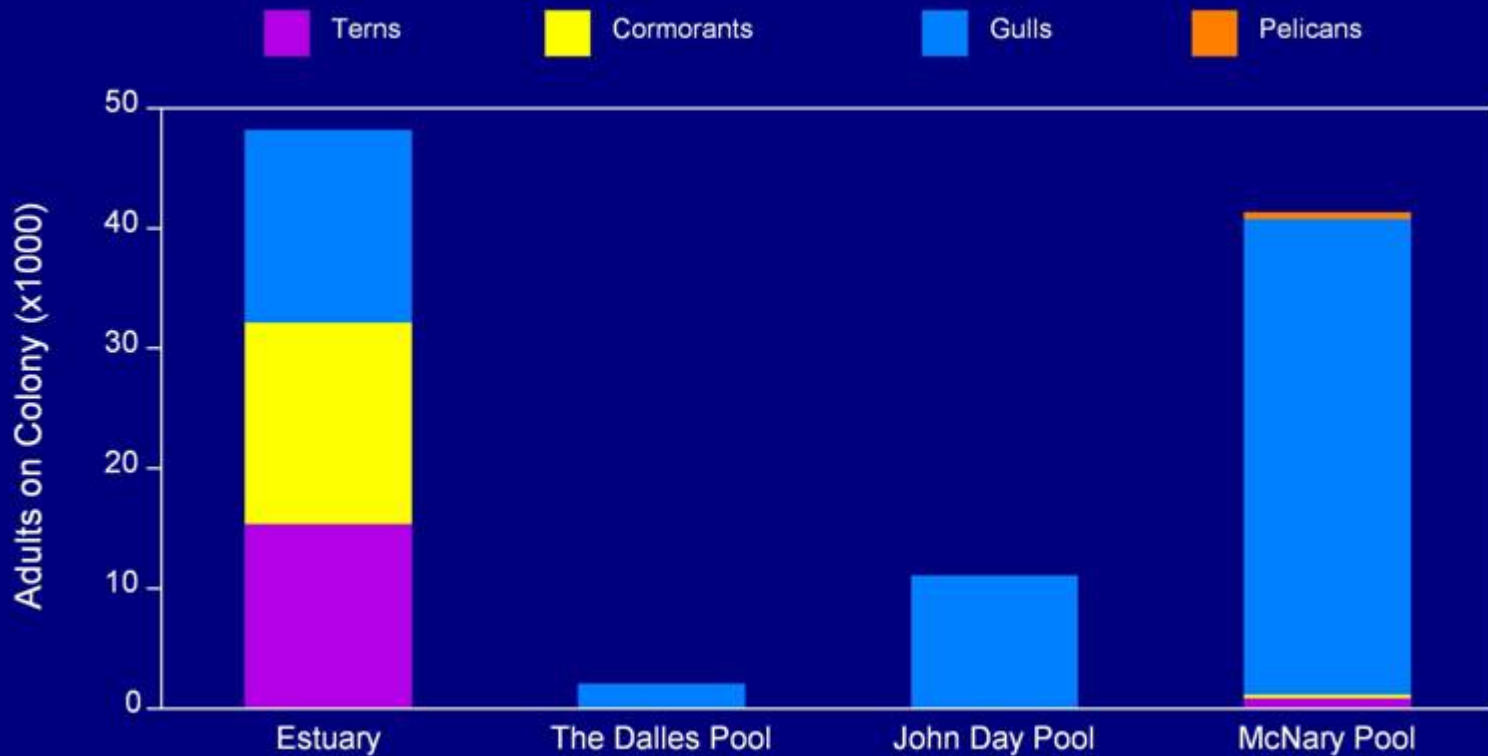


Photo courtesy of Ann Stephenson

Piscivorous Waterbird Colony Locations



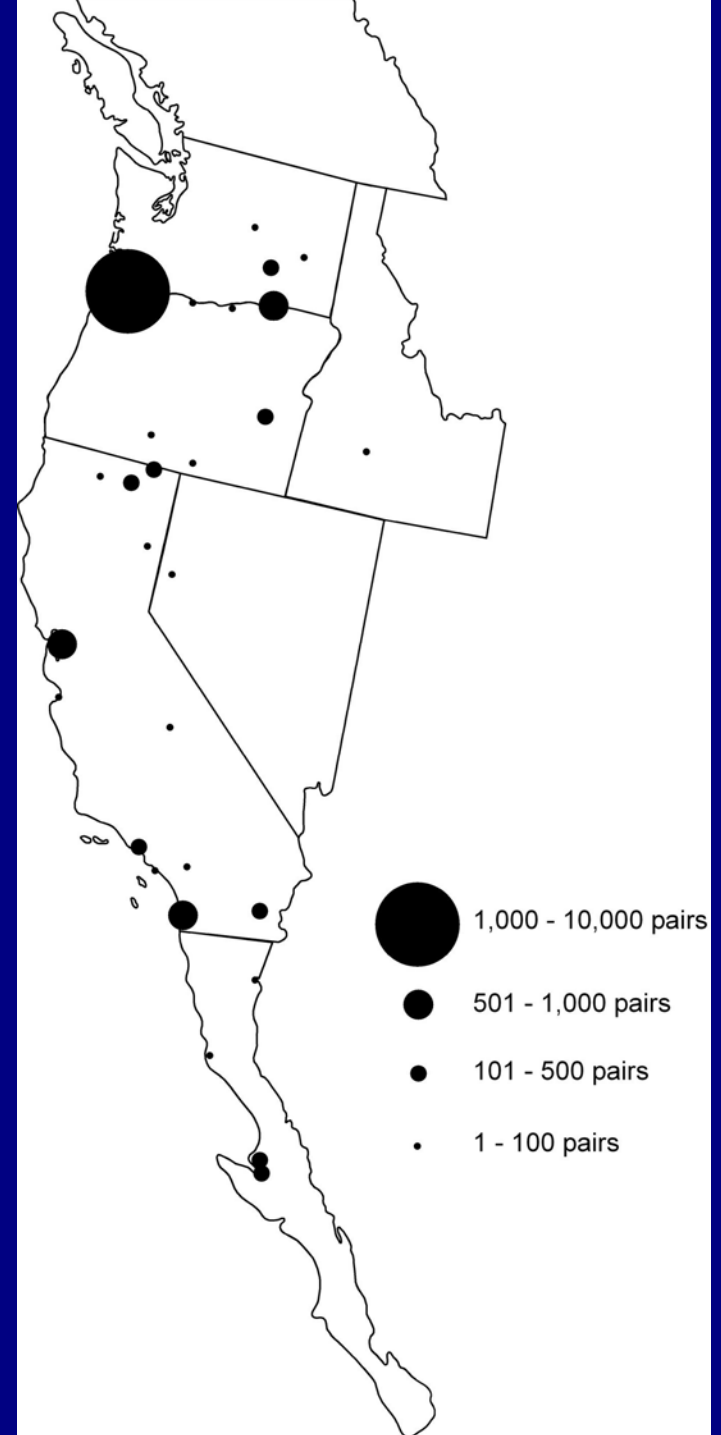
Piscivorous Waterbird Colony Size on the Columbia River





Caspian Tern Colony Distribution

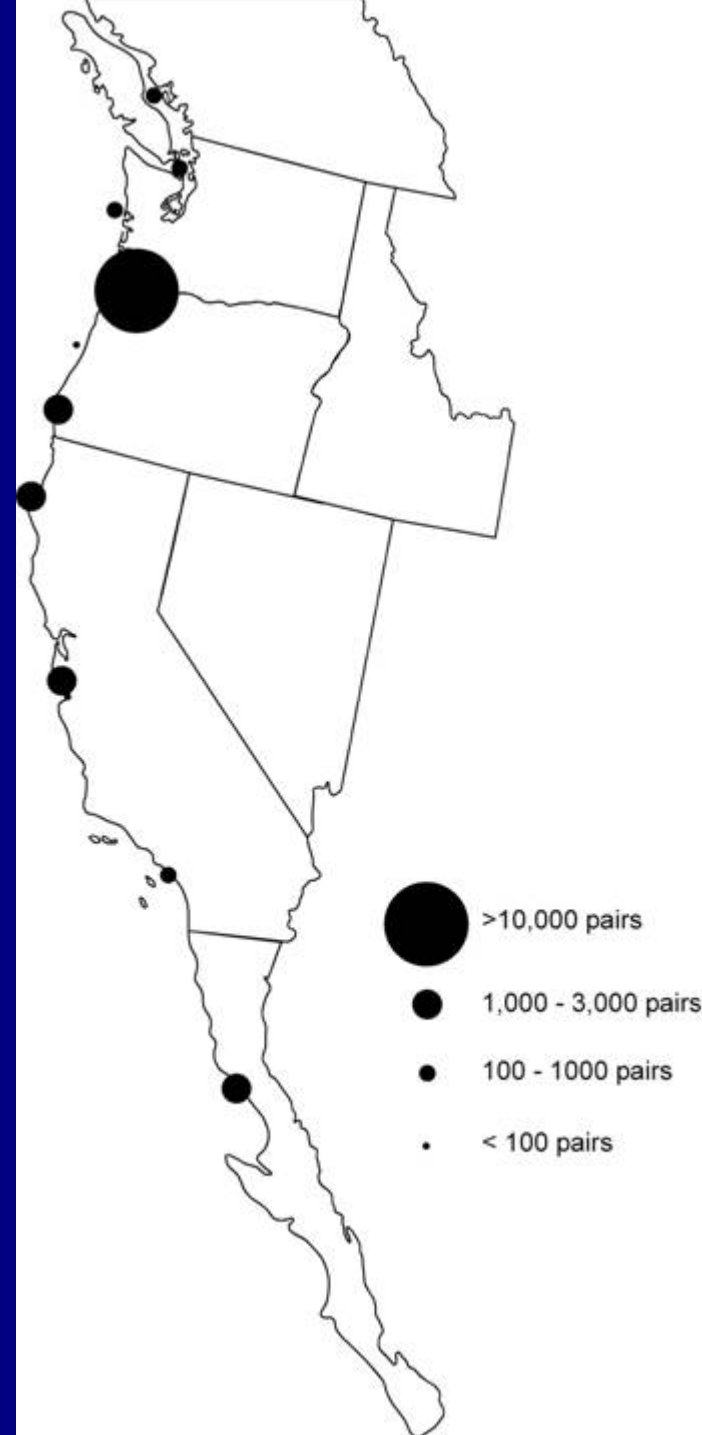
- Range expansion to coastal sites due primarily to anthropogenic habitat
- First nested in the Columbia River Estuary in 1984
- East Sand Island is the largest Caspian tern colony in world
- East Sand Island supports 67% of Pacific Coast population





Pacific Coast Distribution of Nesting Double-crested Cormorants

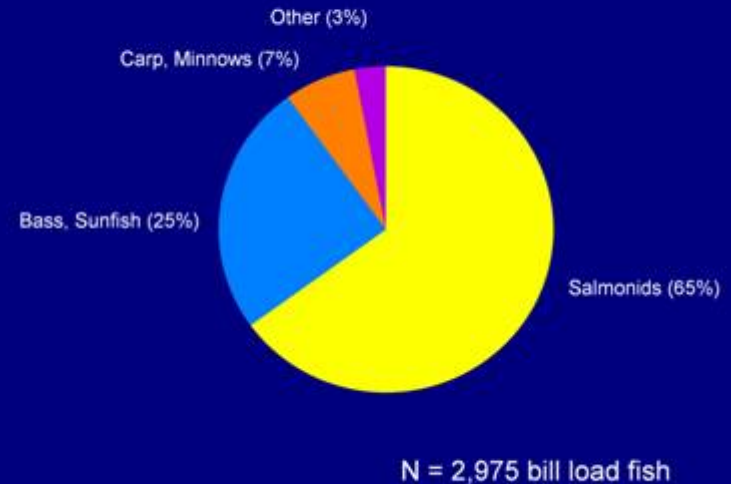
- First recorded nesting on East Sand Island in 1989
- East Sand Island now largest breeding colony in North America
- East Sand Island supports ca. 50% of the Pacific Coast population



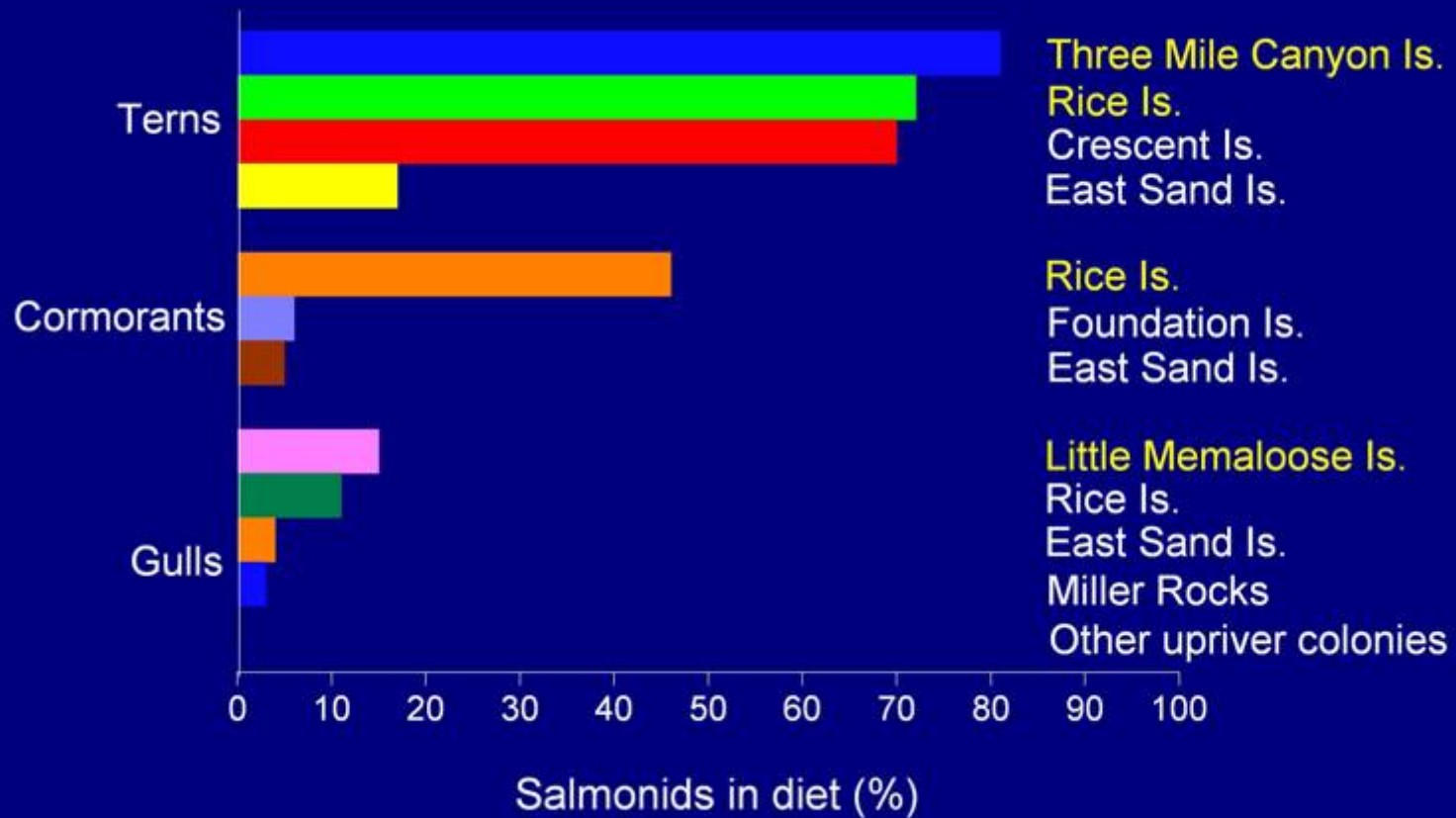
Crescent Island Caspian Terns

- Island created 1985
- 2nd largest colony on Columbia River
- 60-70% of diet is salmonids
- Consume ca. 500,000 smolts/year

Caspian Tern Diet Composition
on Crescent Island, 2005

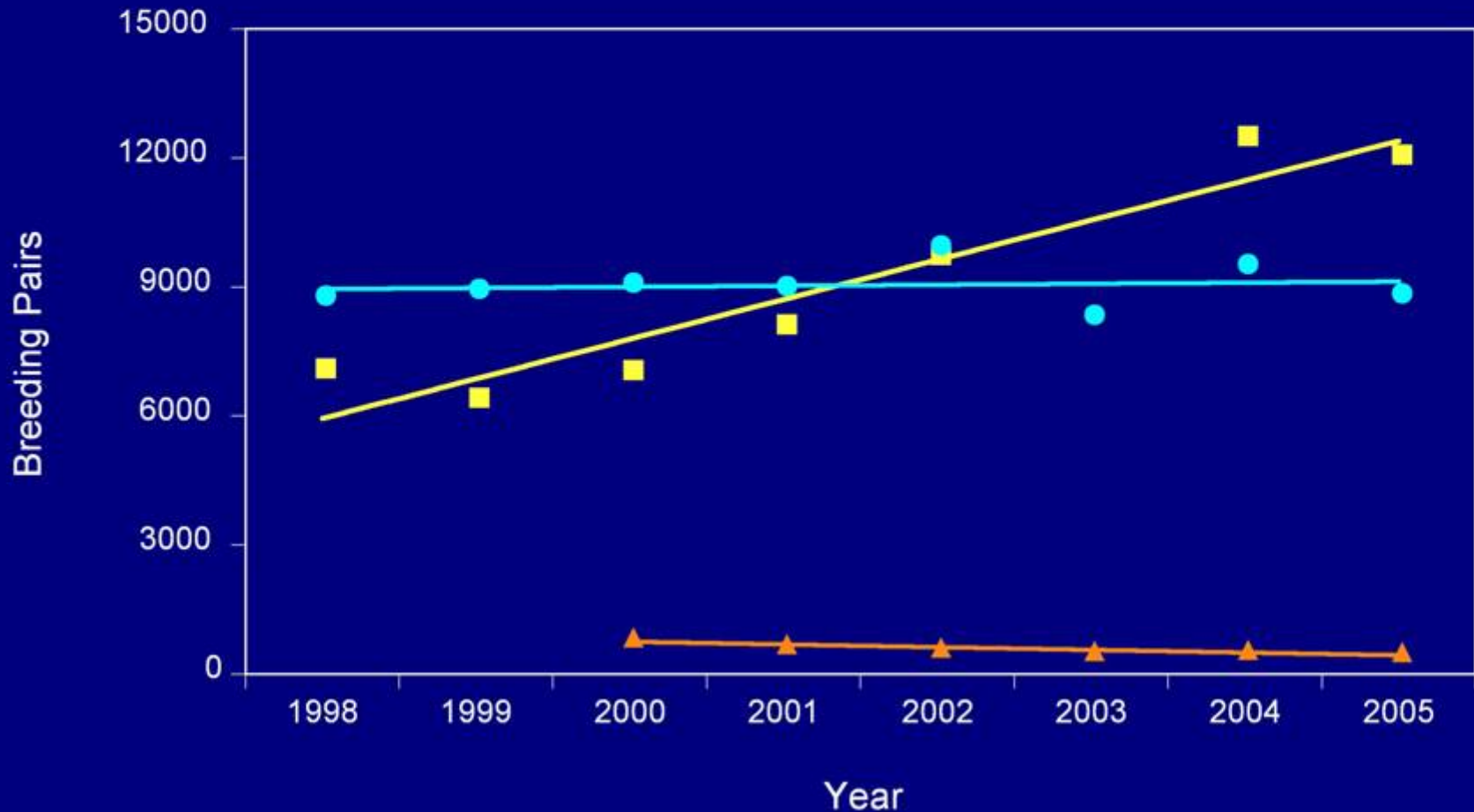


Piscivorous Waterbird Diet Composition on the Columbia River

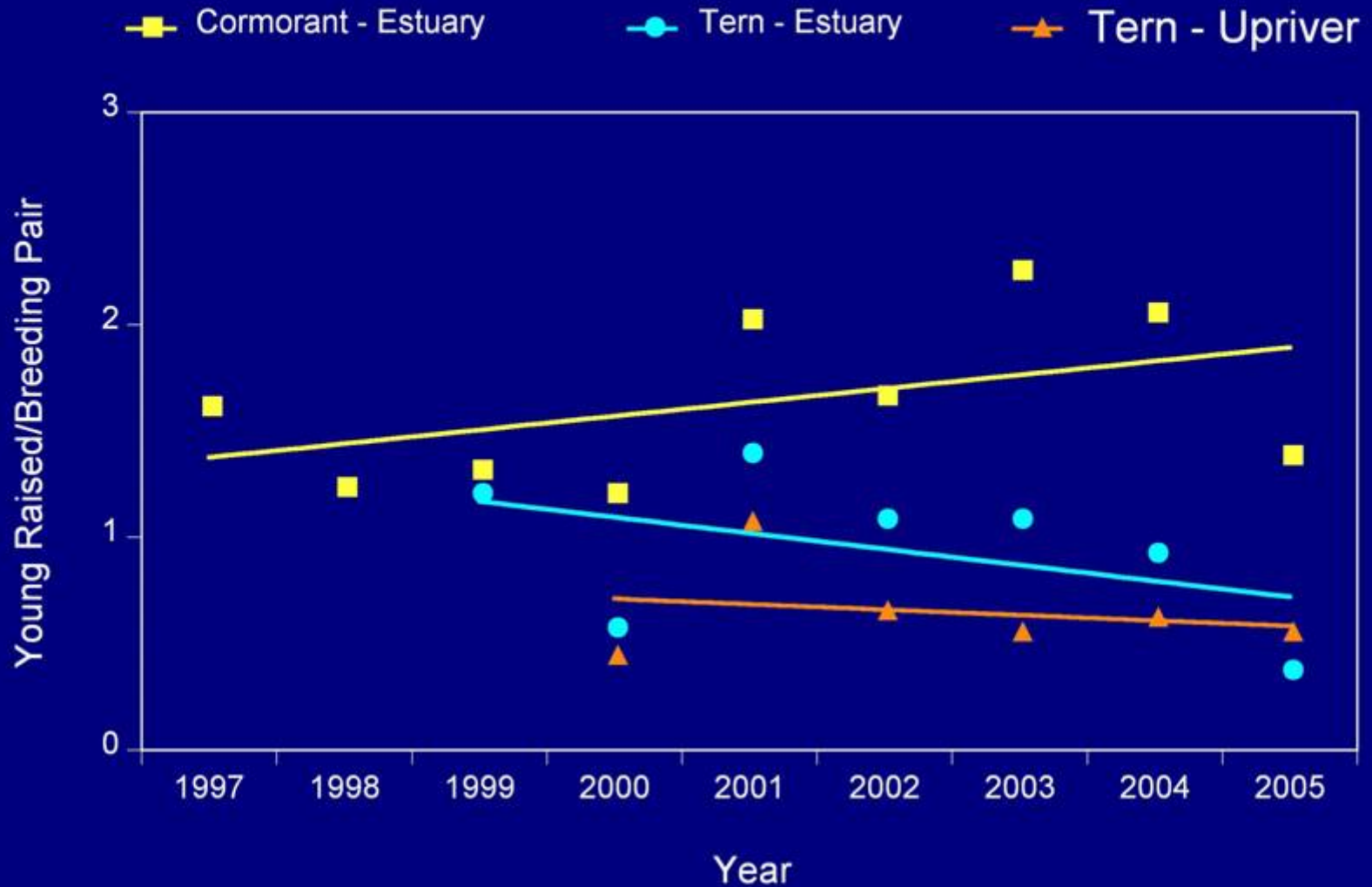


Cormorant and Tern Colony Size on the Columbia River

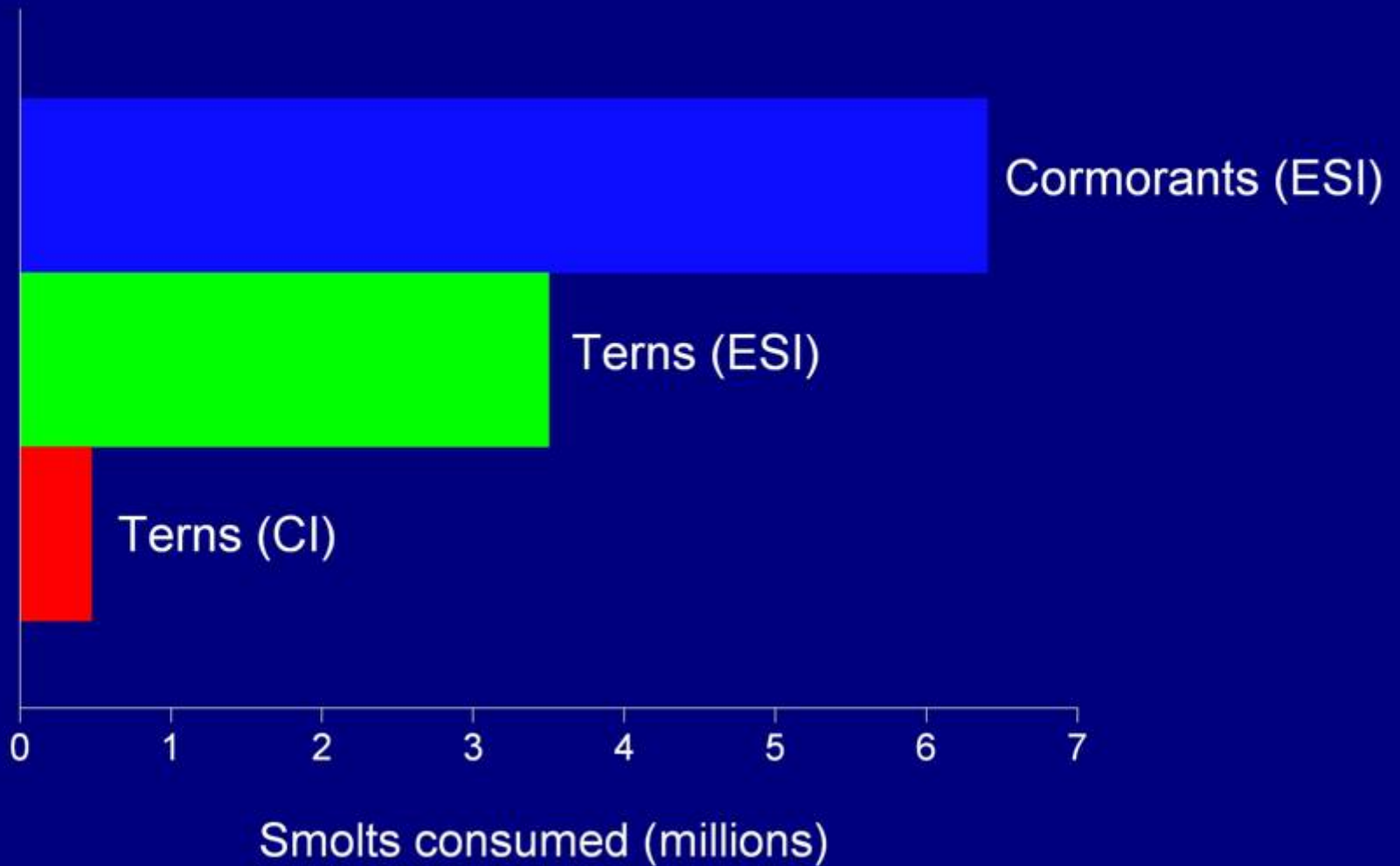
■ Cormorant - Estuary ● Tern - Estuary ▲ Tern - Upriver



Productivity for Cormorants and Terns on the Columbia River



Smolts Consumption in 2004



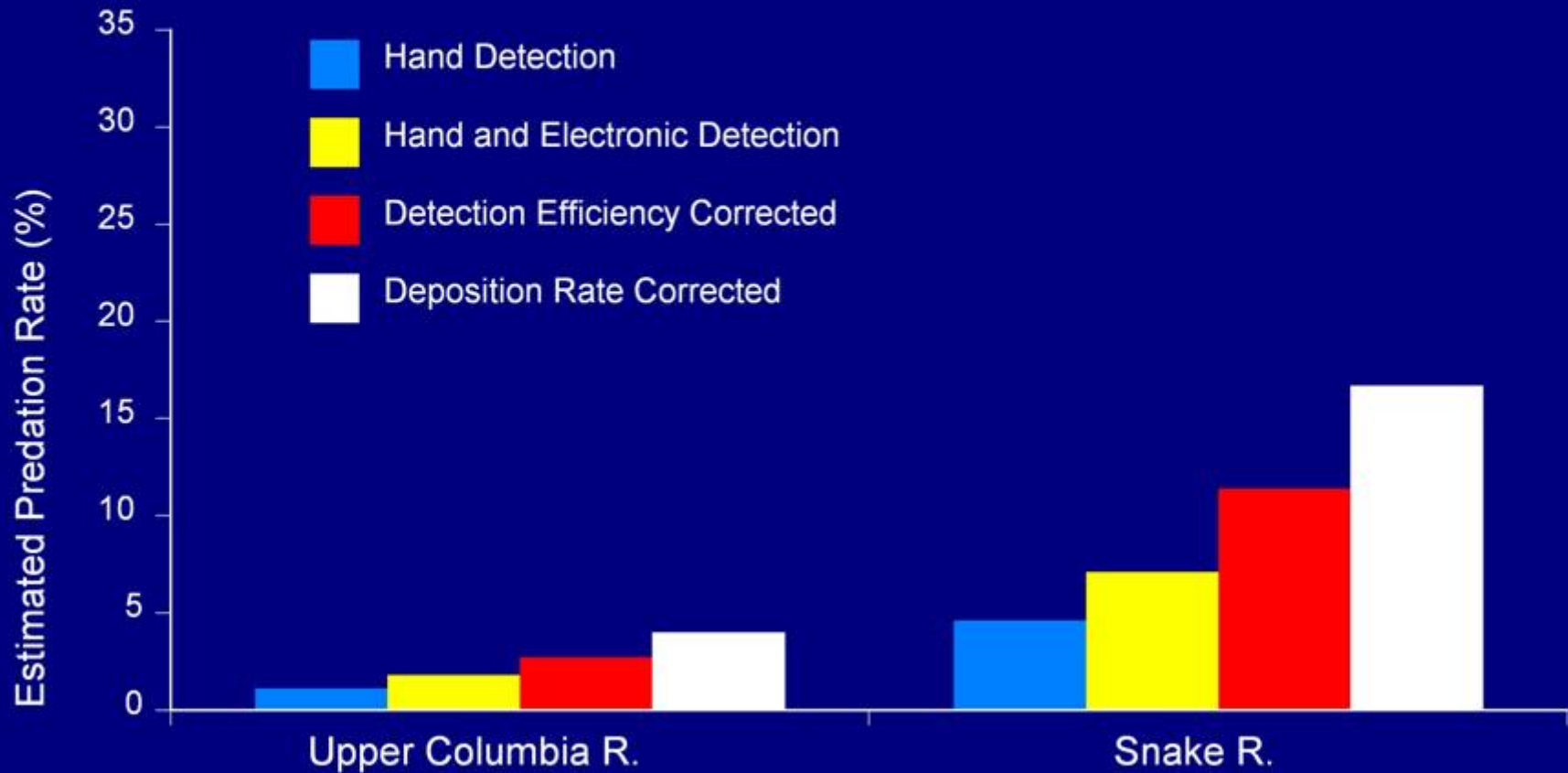
Juvenile Salmonid Consumption in the Columbia River Basin



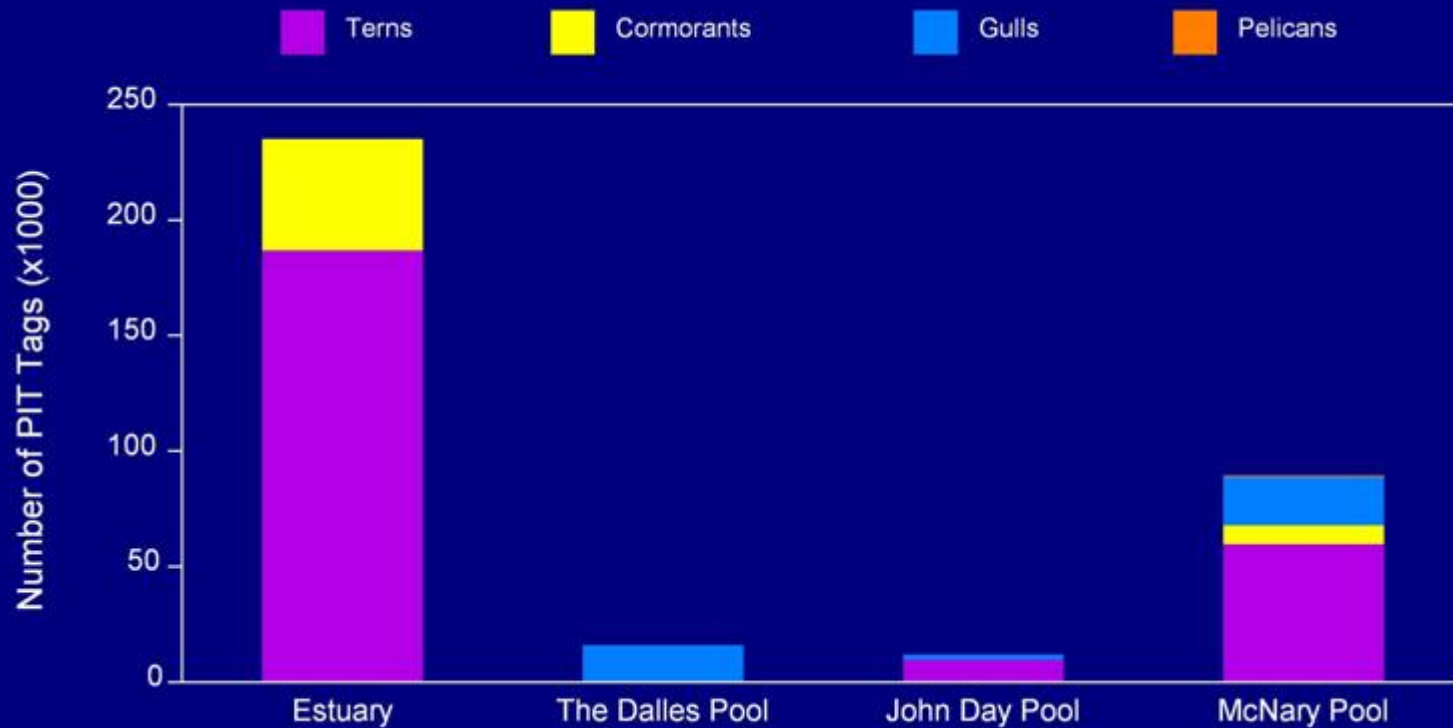
PIT-tag Based Predation Rate Estimates by Crescent Island Caspian Terns (collaboration with NOAA Fisheries)



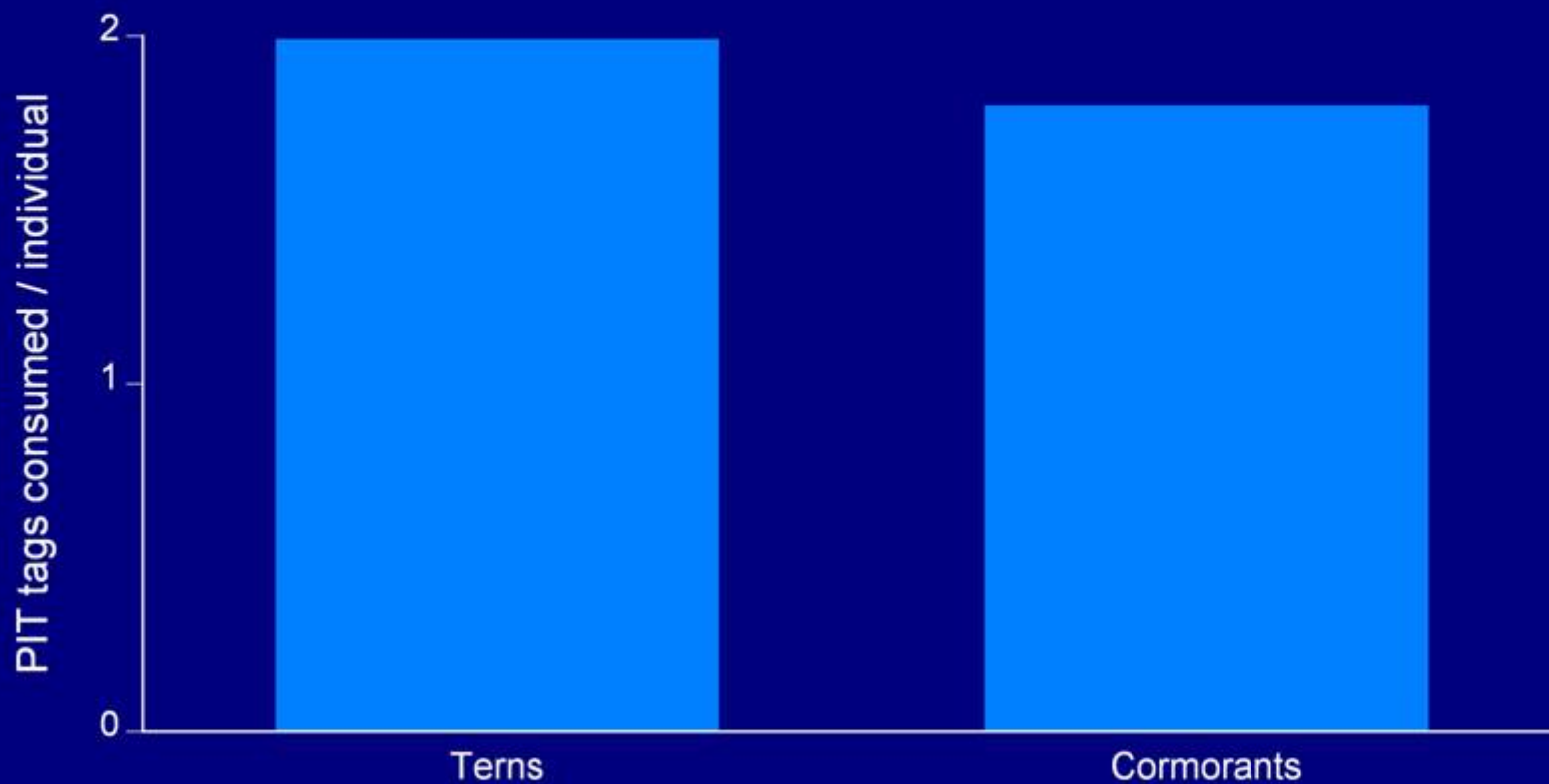
Preliminary Predation Rate Calibrations for Steelhead in 2005



PIT Tags Recovered on Piscivorous Waterbird Colonies on the Columbia River



Per Capita PIT Tag Consumption on East Sand Island, 2005





Avian Predation Study Objectives 2007-2009

- Monitor and evaluate Columbia River Estuary Tern Management Plan
- Collect information needed to complete an EIS to managed cormorants in the estuary and terns upriver, if warranted
- Monitor and evaluate new bird management plans
- Determine system-wide losses of smolts to colonial waterbirds

Acknowledgments

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