

Wildlife Issues Associated with Tall Structures: The Peace Bridge Expansion Project

New York State Wetlands Forum
28 April, 2010

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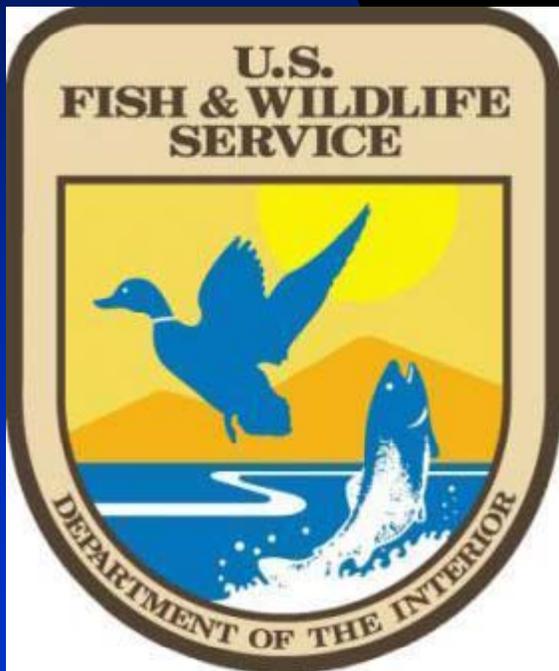


Presentation Outline

- USFWS Programs
- Tall Structures
- Current knowledge of wildlife collisions
- Peace Bridge Project



The US Fish and Wildlife Service



The Service's mission is, *working with others, to conserve, protect, and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American public*

Economic Benefits of Wildlife

- 108 million people take part in wildlife related recreation each year. Annual expenditures by these participants in 1991 were \$59 billion, with over \$40 million spent on hunting and fishing.
- Americans spend \$18 billion a year to watch wildlife, triple what they spend on movies or sporting events. Birdwatchers alone spend \$5.2 billion per year.



USFWS Programs

- **National Wildlife Refuge System**
- **Fisheries**
- **Migratory Birds & State Programs**
- **Law Enforcement**
- **External Affairs**
- **Ecological Services**



NY Offices

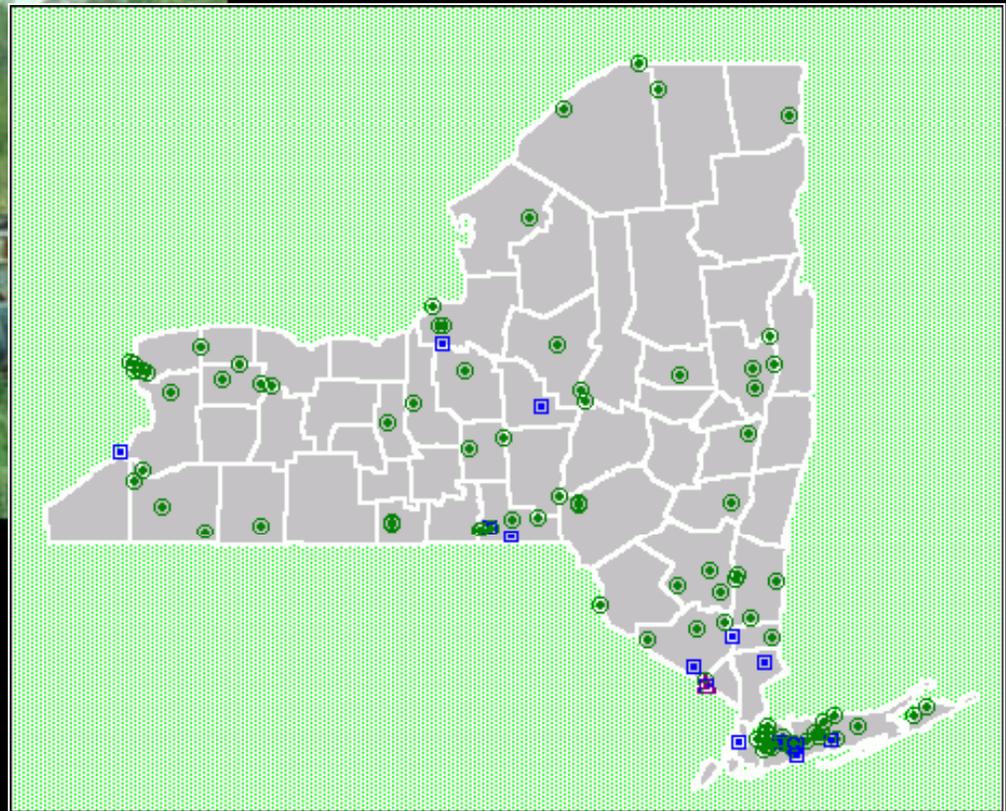
New York



Oil Spill Response



Technical Assistance to USEPA



Natural Resource Damage Assessment and Restoration



Hudson River

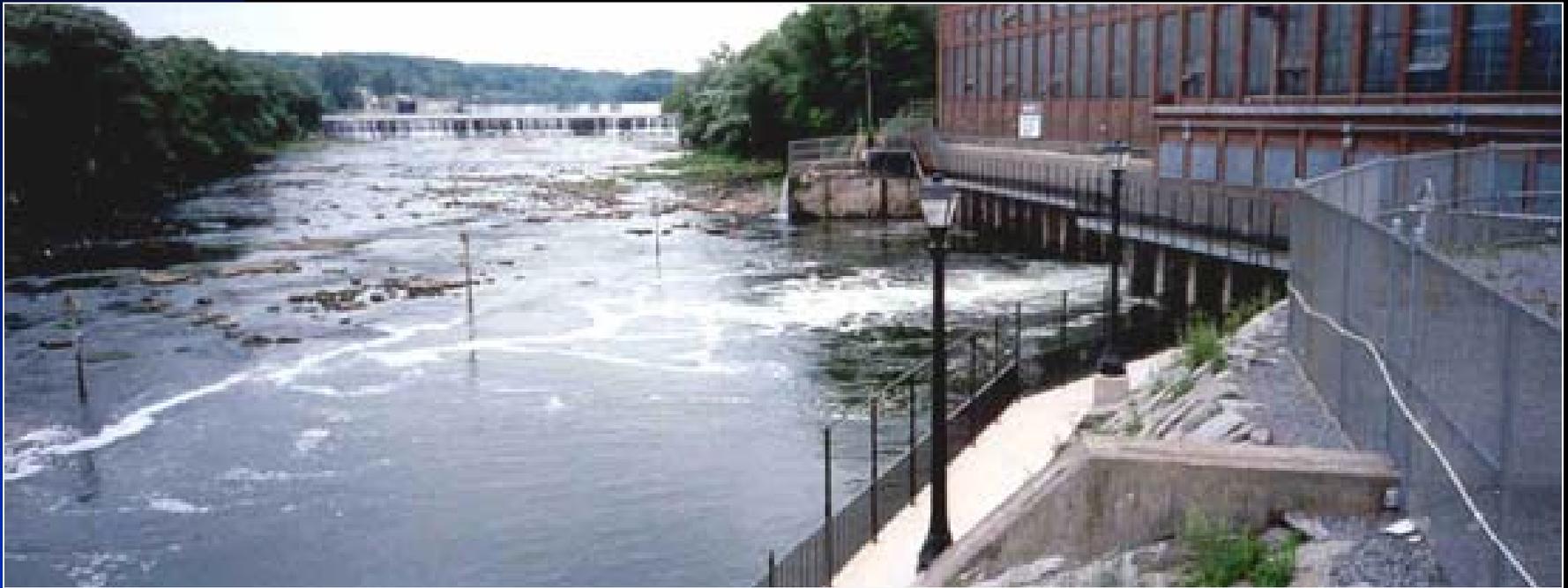
Fish and Wildlife Conservation



Federal Permits to Alter Wetlands and Other Aquatic Habitats



Federal Licenses to Impact Waters of the U.S.





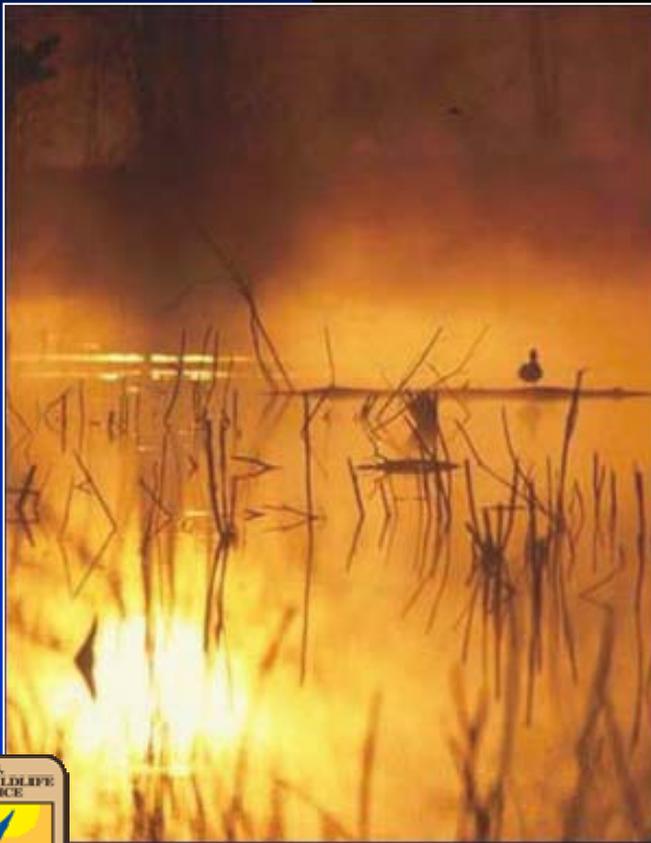
U.S. Fish & Wildlife Service



Partners for Fish and Wildlife



NEW YORK FIELD OFFICE
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Threatened or Endangered Species

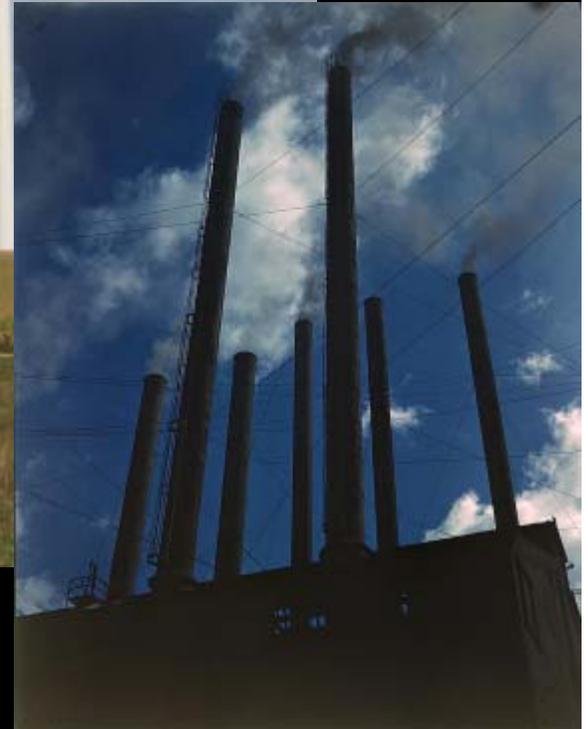


Potentially Applicable Laws and Regulations to Tall Structures

- Migratory Bird Treaty Act
- Endangered Species Act
- Bald and Golden Eagle Protection Act
- Fish and Wildlife Coordination Act
- National Environmental Policy Act
- Clean Water Act



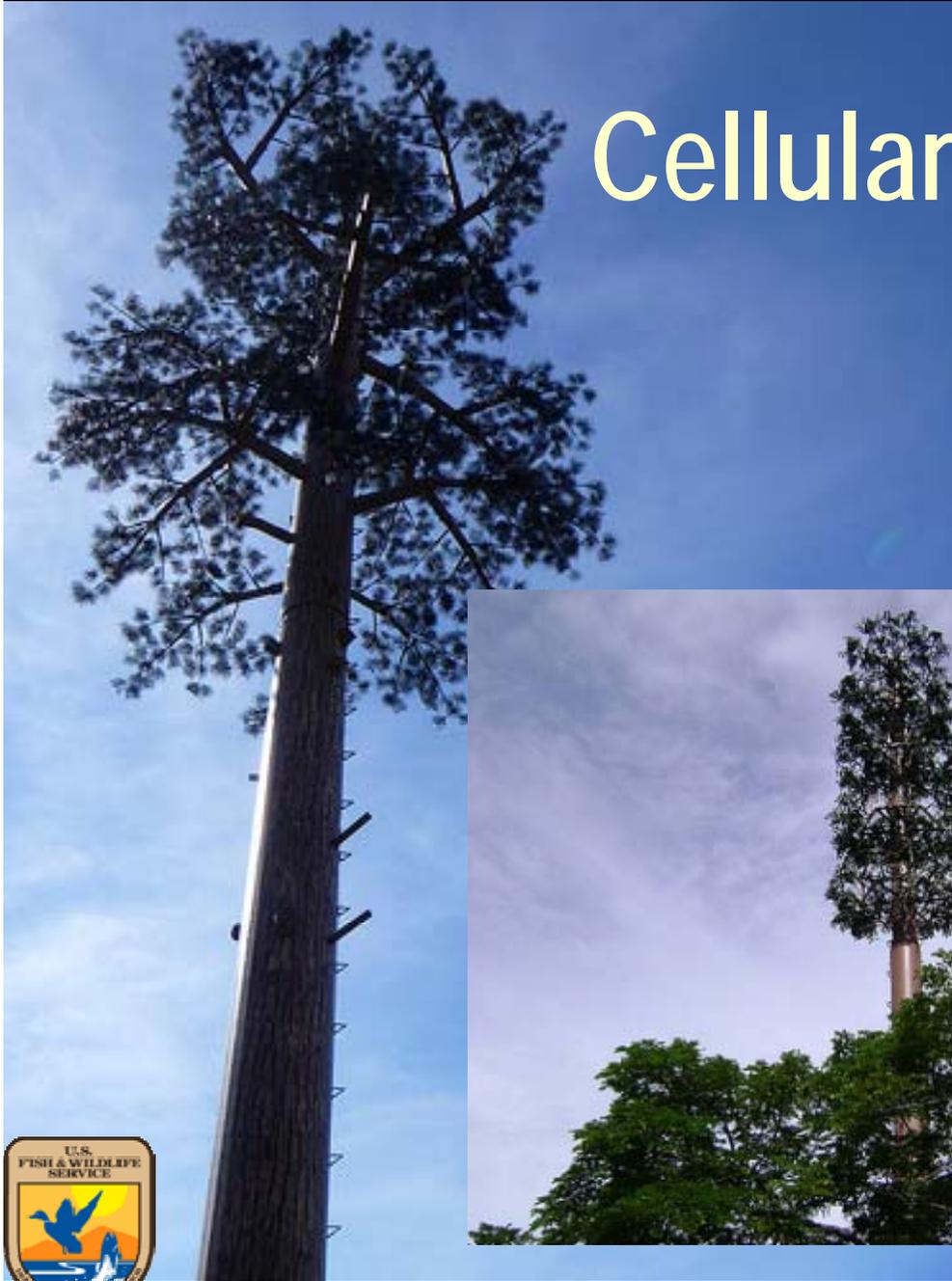
Types of Tall Structures



- Communication towers
- Buildings
- Transmission towers
- Smoke stacks
- Wind turbines
- Bridges



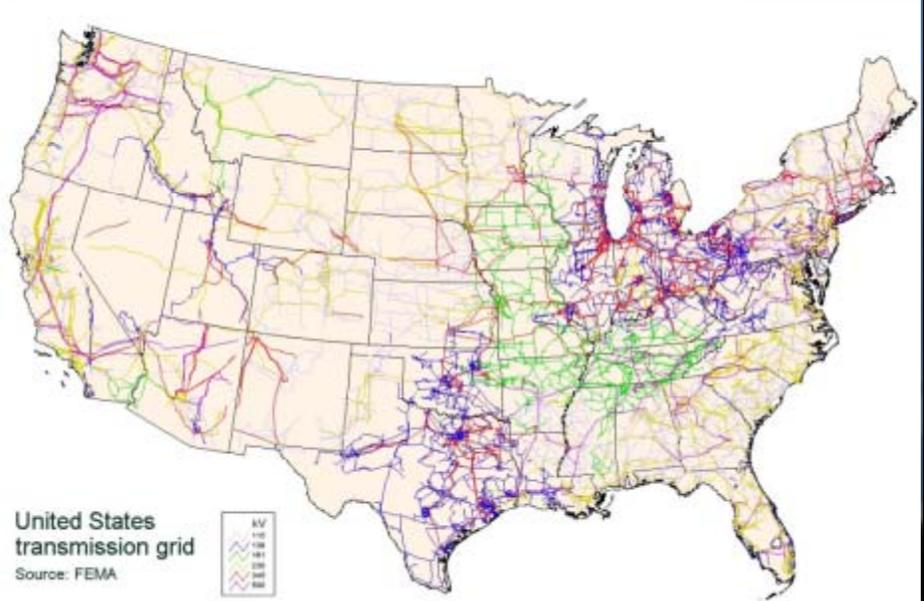
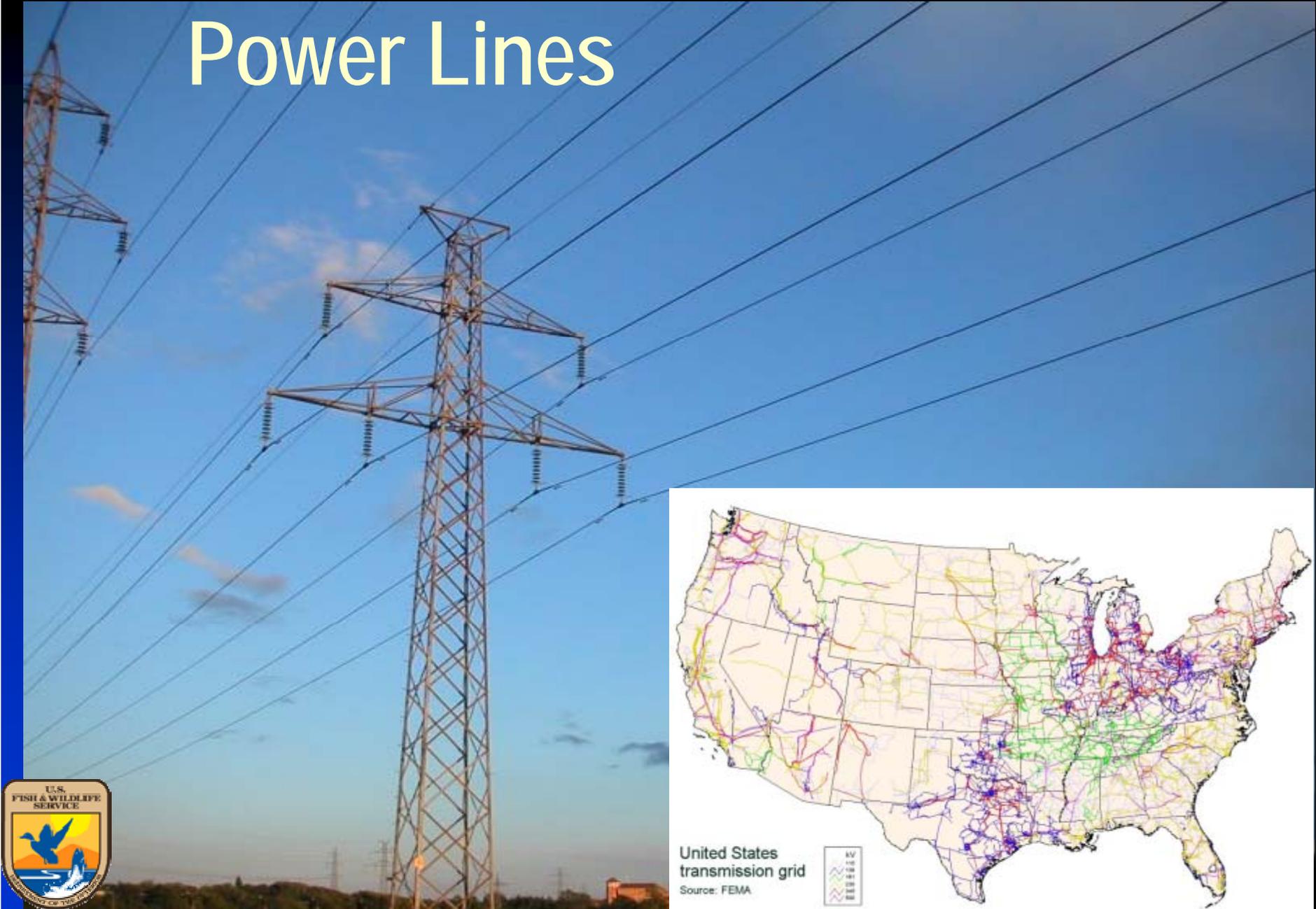
Cellular Towers



Smokestacks & Towers



Power Lines



Types of Wildlife Impacted by Tall Structures

- Birds
- Bats
- Insects

Why ?

- Poor visibility/weather
- Attraction
- Poor siting



Poor Visibility

Buffalo May 4, 2009

The National Weather Service reported 234 days of fog in Buffalo in 2007



Lighting



**Be part of
Lights Out Toronto!**

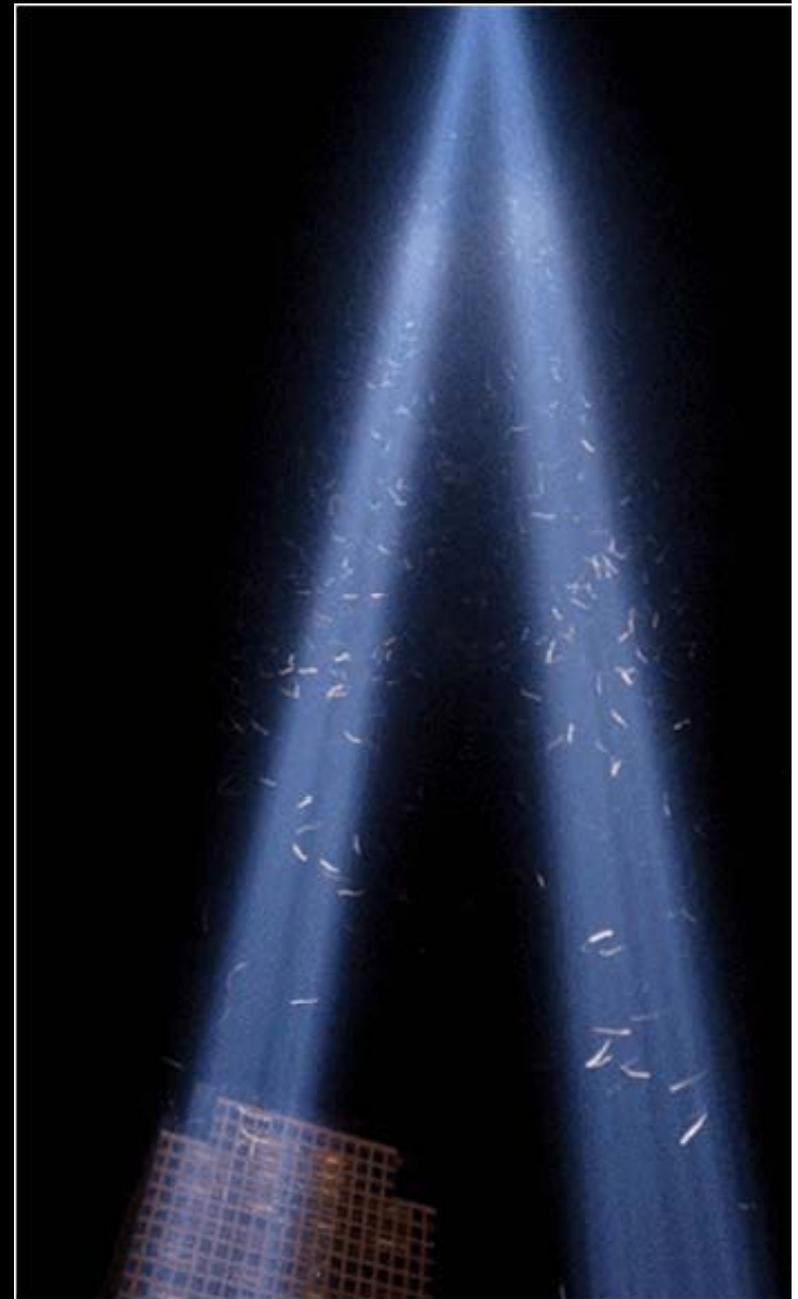
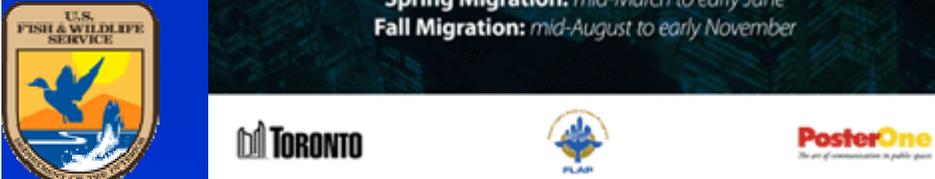
**Colliding with buildings
is a leading cause of death
for migratory birds.**

Help save the birds by turning off unnecessary lights,
drawing blinds, using task lighting at night,
and reporting fallen birds.



LIGHTS OUT TORONTO!
www.toronto.ca/lightout

Spring Migration: mid-March to early June
Fall Migration: mid-August to early November



Jay Smooth of
www.hiphopmusic.com

Towerkill.com

Lists all towers over 200'

Towerkill.Com | United States - New York - Windows Internet Explorer

http://towerkill.com/reports/US/NY.html

File Edit View Favorites Tools Help

http://www.fws.gov/digital... communication towers - Geo... Towerkill.Com | United St...

United States - New York 2004

Tower Classes	1998	2004
200 - 299 Feet	422	521
300 - 499 Feet	253	306
500 - 799 Feet	28	30
800 + Feet	17	21

Additional New York Data

United States Maps Canada & Other Maps

Alaska Go Alberta Go

Home | News | Science | Activism | Links | FAQ

ats@towerkill.com

Internet 100%

Tin P. Sullivan 3 Mon... 3 Interne... 2 Window... 3:36 PM

Antennasearch.com

AntennaSearch - Search for Cell Towers, Cell Reception, Hidden Antennas and more. Windows Internet Explorer

AntennaSearch - Search for Cell Towers, Cell Recept...

TOWER STRUCTURES: LUKER RD, CORTLAND, NY 13045

Map Satellite Hybrid

2 mi 2 km

Tower (Registered) * High structures (typically over 200 ft in height)
 Tower (Not-Registered) * Medium structures (100 to 200 ft in height)
 Future Tower * Future site for registered tower

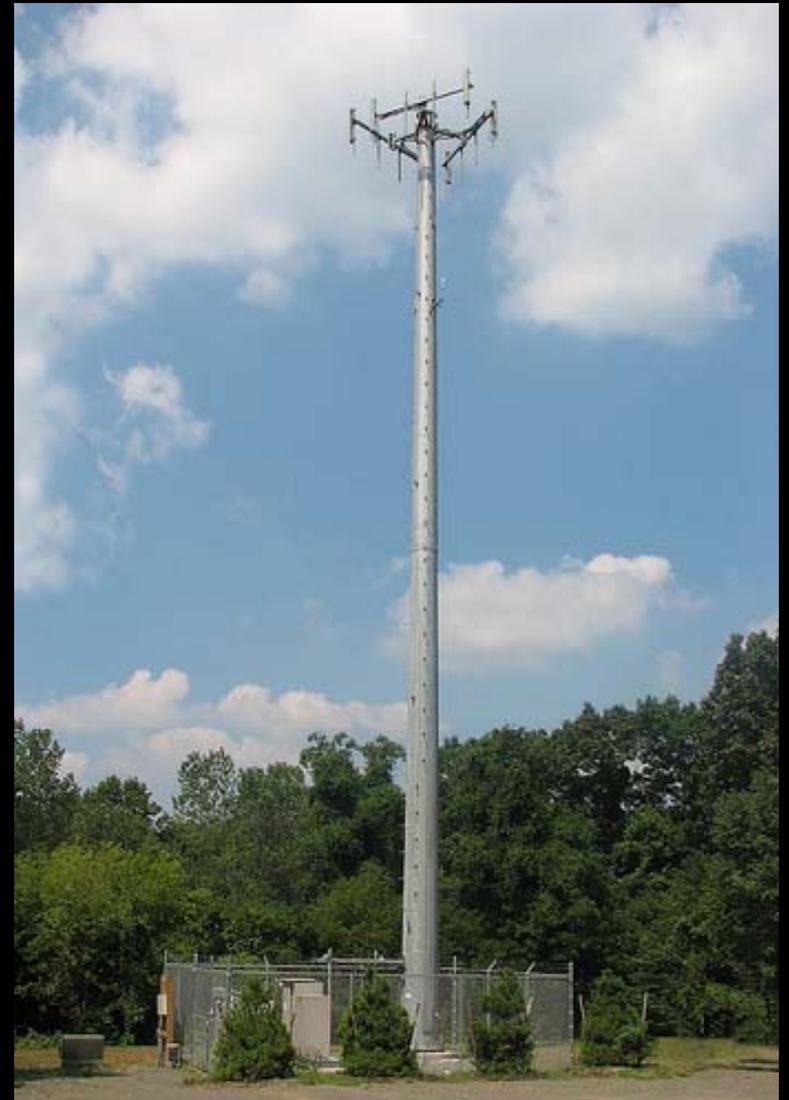
Tower Search Results:

- Alert!** 16 Towers (4 Registered, 14 Not Registered) found within 4.00 miles of Luker Rd, Cortland, NY 13045.
- Info!** The NEAREST Tower is .37 miles away and is owned by **Niagara Mohawk Power Corporation**.
- Alert!** One New Tower Application found within 4.00 miles of Luker Rd, Cortland, NY 13045.

Tower Type	ID	Name	Height	Dist
Registered	(1)	Verizon Cellular Network	190 feet	1.68 miles
	(2)	State University Of New York At Cortland	90 feet	2.20 miles
	(3)	National Grid Usa Service Company, Inc	59 feet	3.61 miles
	(4)	Crown Cable Company, Llc	182 feet	3.61 miles
Not Registered	(1)	Niagara Mohawk Power Corporation	79 feet	.37 miles
	(2)	American Tower	156 feet	.85 miles
	(3)	Cortland County, Ny	40 feet	.74 miles
	(4)	City Of Cortland Water Board	62 feet	1.83 miles
	(5)	Crown Cable Iv	148 feet	2.23 miles
	(6)	Ny Wind And Sun	66 feet	2.23 miles
	(7)	Crown Cable Usa - Albany	86 feet	2.33 miles
	(8)	American Tower Management	249 feet	2.72 miles
	(9)	New England Wireless Dtm	180 feet	2.84 miles
	(10)	Verizon Cellular Network	110 feet	3.24 miles
	(11)	Cingular Wireless-ny	190 feet	3.36 miles
	(12)	Quectel Communications	125 feet	3.40 miles
	(13)	Verizon Electronics	198 feet	3.77 miles
	(14)	Bochater TeleMobile Communications	138 feet	3.77 miles
Future	(1)	Cortland Christian Radio, Inc	102 feet	2.10 miles

© 2004-2009 by General Data Resources, Inc.

18 towers within 4 miles

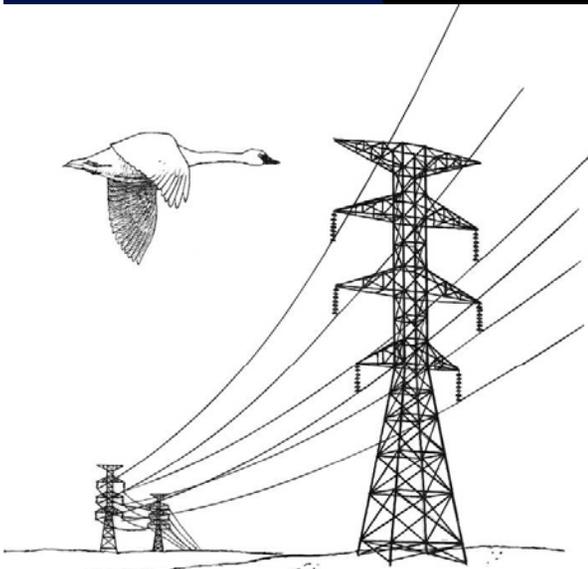


Tower Kill Reports

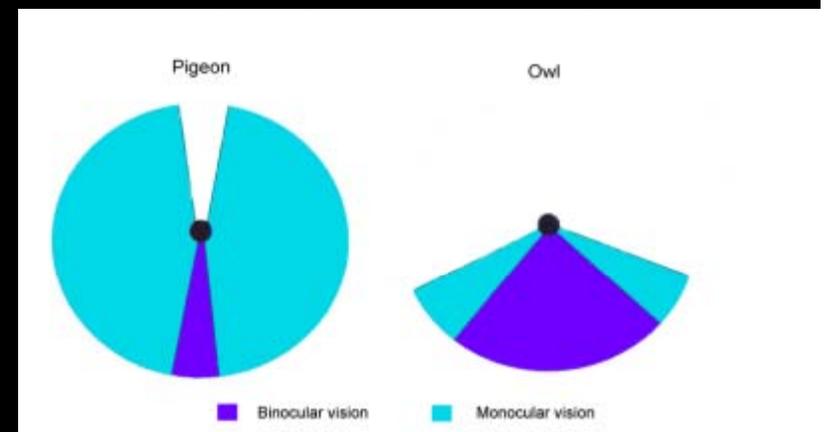
- "The record-breaking kills [fall 1977] at the TV towers in Elmira indicate that birds were going through despite the birders' inability to find them. In five rainy nights with low cloud ceilings, September 20-24, a record-breaking 3,862 birds were picked up dead at the base of this tower. On the night of September 19-20 alone, 1,817 birds of 39 species were killed. Of the overall total of 48 species there were 24 warblers, five vireos and four each of thrushes and flycatchers. One unusual victim was a Common Gallinule." Walter Benning, KINGBIRD vol. 28, no. 1, p.42.



Current Knowledge of Avian Collisions with Tall Structures



- Data mostly from US but some research from Europe
- Studies on flight behavior
- Studies on vision
- Research on deterrents



Species Negatively Affected by Tall Structures



Upland Sandpiper

Fear of tall structures
Habitat fragmentation
Increased predation



Greater Sage Grouse



Beneficial Impact



Peregrine Falcon



Estimated US Avian Mortality From Tall Structures

- Communication towers = 4.5 million
- Buildings/glass windows = 550 million
- Transmission lines = 130 million
- Wind turbines = 50k
- Total = **685 million**

Does not account for cats(100m), automobiles(80m), pesticides(67m) and natural predation(?).

Source: W.P. Erickson, et al 2005



Cumulative impacts

Habitat
Fragmentation
Population levels



The Peace Bridge Project

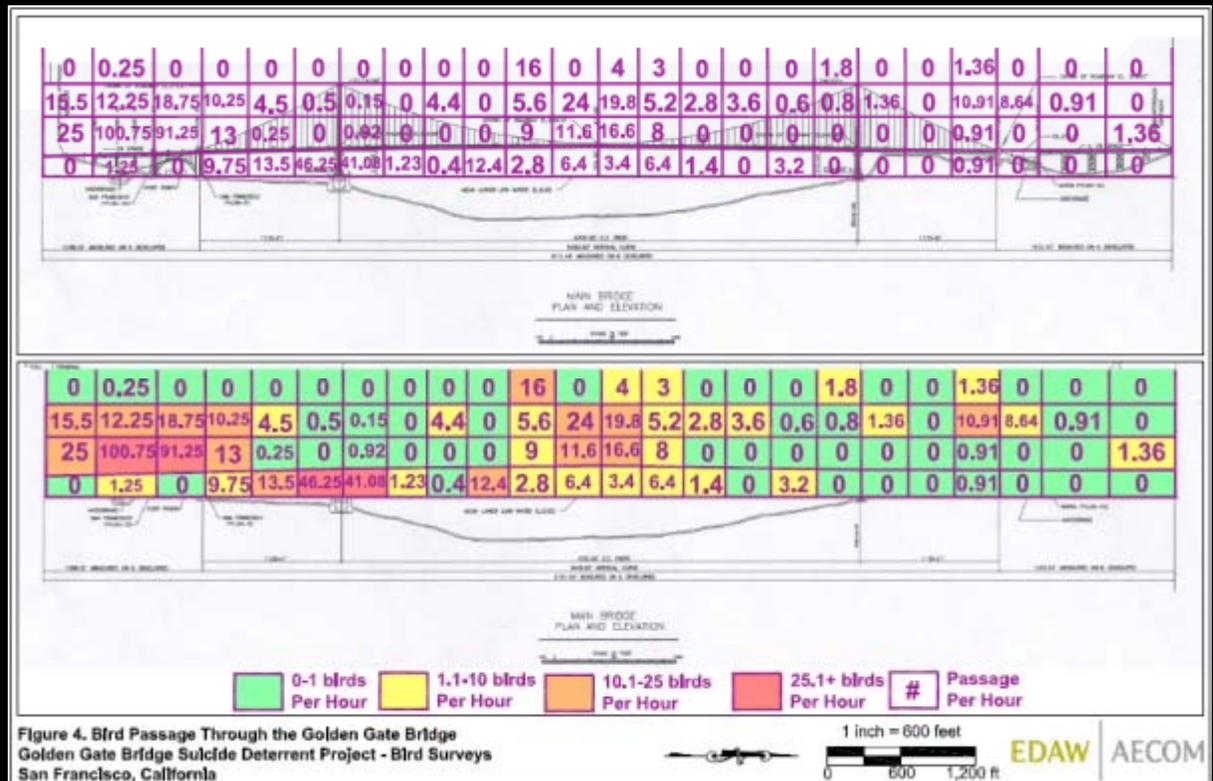


- Many controversial issues
- NEPA process challenged
- Avian issues
- Fisheries issues

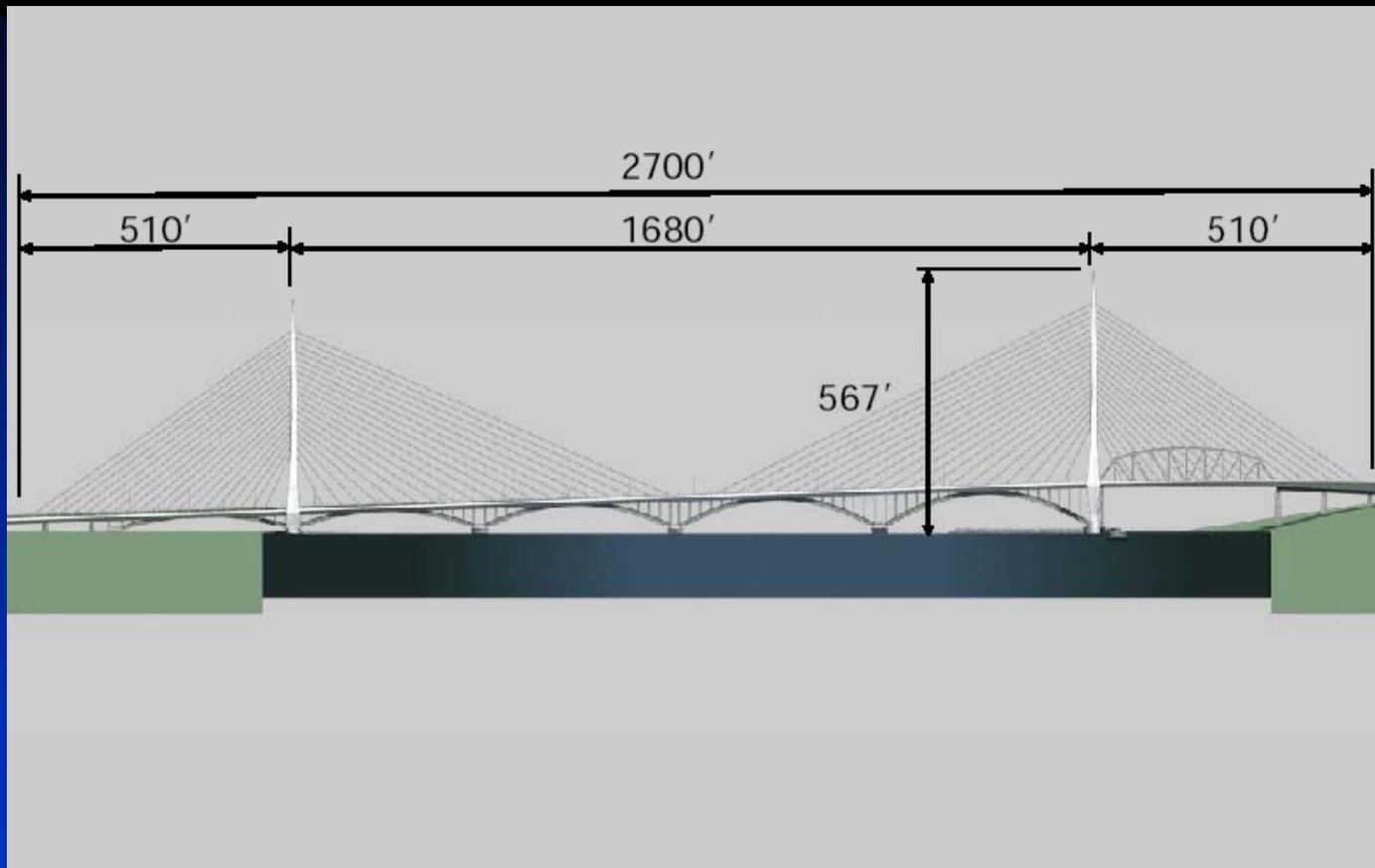


Previous Avian Bridge Studies

- Very scant details about this topic
- Florida, Canada, Europe, Hong Kong
- No credible post construction mortality studies



The Original Bridge Concept



Two Towers | Concept 6
Figg/Menn Design



Arch Bridge Concept



Three Span Arch

Concept 5

Figg/Menn Design



New Tower Bridge Concept



Two Towers | Concept 16b

Figg/Menn Design



Avian Issues

Peace Bridge Design Concepts AVIAN RESOURCES



The Peace Bridge is located in the Niagara River corridor which is recognized as a *Global Important Bird Area* (Global IBA). This corridor attracts at least 262 species of birds.



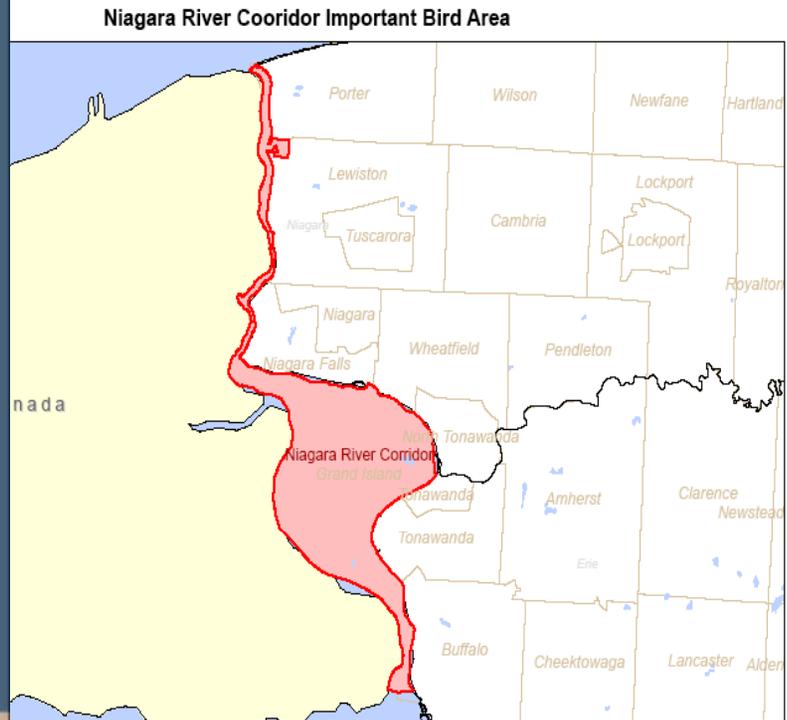
Nearly 20 percent of the world's population of Bonaparte's Gulls, and 30 percent of the state's Canvasback, Greater Scaup and Common Merganser winter in the area.



The common tern colony in the Buffalo Harbor, with more than 1,700 nesting pairs, is the largest in the Great Lakes Basin. The common tern is threatened in New York and in many other states as well.



The Niagara River corridor provides critical habitat to many species of birds. This needs to be taken into consideration during bridge design and selection.



NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION



Map Created March 2009, Ithaca NY

Winter Conditions

Ice Boom provides open water for water birds

Change in feeding and wintering patterns



March 21, 2007 (ISS014-E-17999)

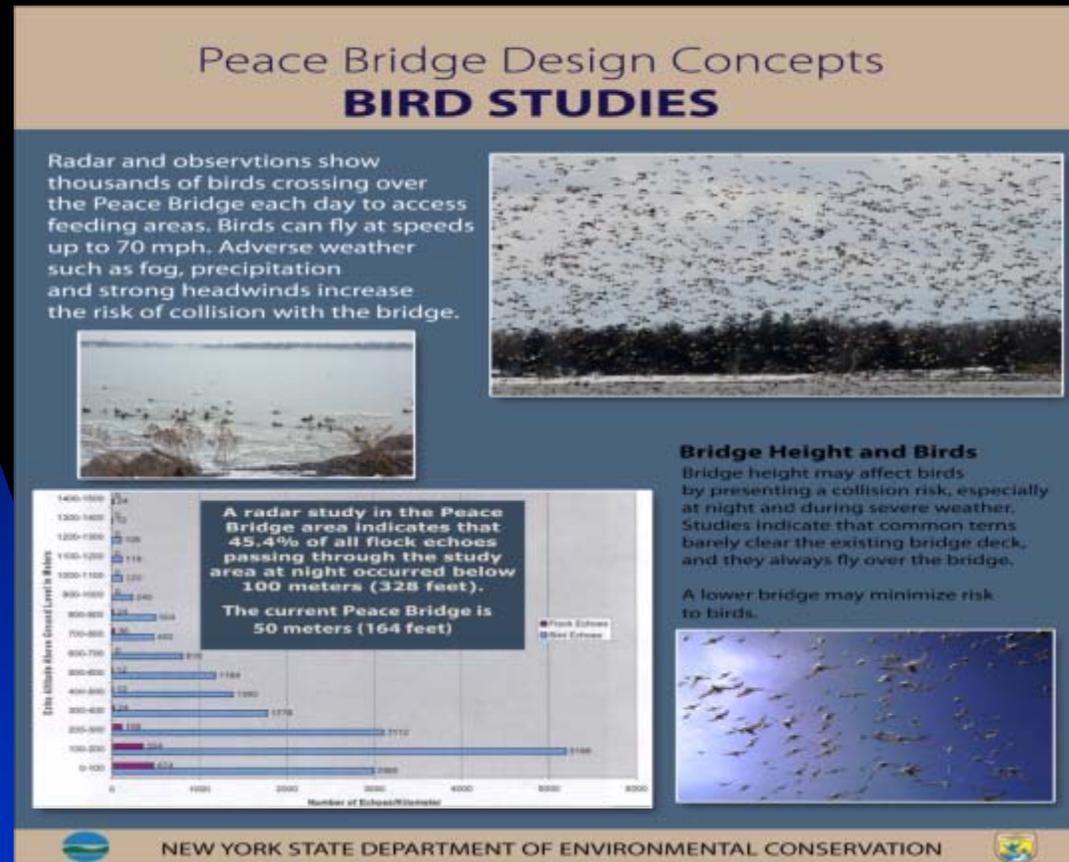
April 29, 2007 (ISS015-E-05624)



March 21, 2007 detail view



Unique Avian Studies

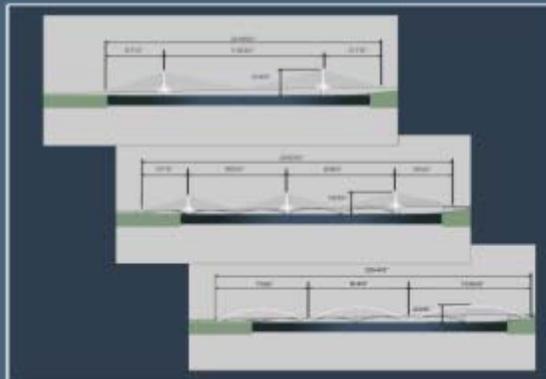


PBA Study found that 45.4% of all flock echoes passing through the study area at night occurred below 100 meters (328 feet)

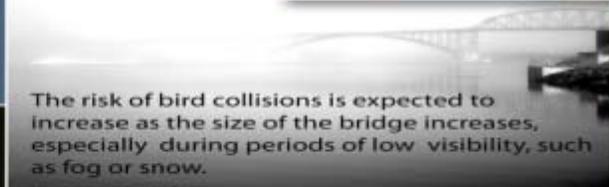
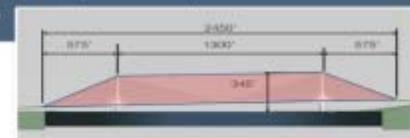


Avian Collision Risk

Peace Bridge Design Concepts **BIRD IMPACTS AND BRIDGE DESIGN**



Birds see differently than humans. A bridge structure may be perceived as a solid barrier or wall (wall effect). They will not fly between cables or in the V-shaped area between towers. A larger bridge may force birds to use more energy by flying over or around the bridge due to the wall effect. This may negatively affect reproduction and increase mortality rates.



Some colors may attract and confuse birds. Lighting should be carefully considered when designing the new bridge.

The risk of bird collisions is expected to increase as the size of the bridge increases, especially during periods of low visibility, such as fog or snow.



Other Cable Stay Bridges are located in large expanses of water or in dense areas. None of the existing cable stay bridges in the U.S. are located in a Global IBA.
(clockwise from top left: Hong Kong, Oresund, Boston, Tampa Bay, Charleston)



Fisheries Issues



Fish Passage



Comparison of Bridge Footprints

Concept 6

Figg/Menn Design



Fish Resources

Peace Bridge Design Concepts **FISH IMPACTS AND BRIDGE DESIGN**

The Niagara River provides excellent habitat and supports a rich fishery.



Emerald Shiner



Emerald shiners help sustain this fishery. They are an important food source for many fish and birds.

Common Tern



Large schools of emerald shiners migrate upstream to Lake Erie. They avoid high water velocities by staying close to rocks and other cover along the shore.

A bridge design with mid-river pier locations will avoid an increase to near-shore water velocity and support fish migration. Mid-river piers also minimize construction impacts to valuable shallow water habitat.



NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Lessons Learned

- Need to think outside the box for projects in important resource areas
- Birds and fish important considerations, consultants should coordinate with agencies early in the environmental review process



Next Steps

- Select an alternative to build
- Agencies to discuss lighting design
- PB Authority to monitor avian mortality
- PB Authority to monitor fish passage
- FWS will continue to research issue



Questions ?

