An Expanding Osprey Nesting Population on San Francisco Bay

© Tony Brake, 2019
Osprey (*Pandion haliaetus*)

- Large raptor: L= 22-25”, WS=58-72”, ~3.5 lb., Female > Male
- Diet almost exclusively live fish
- Highly specialized, e.g., wing anatomy, reversible outer toe, spicules on legs and feet, long curved talons, closeable nostrils
- Cosmopolitan – Breeds or winters on every continent except Antarctica
- Sentinel species for aquatic habitats – e.g., decline during DDT era, then recovery following ban on agricultural use
- Provides opportunity to engage public in observation of raptor breeding behavior
Osprey Global Range

From: Raptors of the World, Ferguson-Lees & Christie
Osprey Range in North America

from Birds of North America Online
Ospreys on San Francisco Bay

- **2600 BP-700 BP** — No evidence of Osprey remains identified in Emeryville Shellmound excavation (Jack Broughton, U. of Utah)

- **Late 18th-early 19th Century** — Formerly widespread over the whole length of California, but rare in Bay Area with the nearest nests on Russian River in Sonoma County (Grinnell & Miller 1944, Grinnell & Wythe 1927)

- **Mid-1960s** — Colony founded at Kent Lake in Marin County. By 1994, grew to 52 occupied nests, then declined (Jules Evens),
Ospreys on San Francisco Bay

- **1990** – First nest at Mare Island (Carter, Leong, Coburn)

- **1998 - 1999** – 1-2 nests in East Bay (Breeding Bird Atlases)

- **2003 - 2012** – Rapidly growing population at Mare Island

- **2012 - 2020** – Continued growth and expansion southward
Increase in SF Bay Osprey Nests 2012-2020
Productivity of SF Bay Osprey Nests

(Number of Feldglings per Nest)

- Active Nests
- Successful Nests

(*Population Likely Stable or Growing if greater than 0.8-1.15*)
SF Bay Osprey Nests 2012-2020

237 Successful Nests, 519 fledged:
Mean = 2.19 Fledged per Nest
History Of Osprey Nesting Along The Mare Island Strait

Pre-2012 Data from Robin Leong & Wally Neville
Natural Osprey Nests

- **Sweden**
- **Abu Dabi, Persian Gulf**
- **Yellowstone**
- **Mono Lake**
- **Bahia de los Angeles, Baja CA**
Point Potrero, Port of Richmond
Point Molate, Richmond

Foster City
2ND ANNUAL
SAN FRANCISCO BAY OSPREY DAYS
Mare Island Shoreline Heritage Preserve – Vallejo
Audubon Society field guide led outings, boat trips, science presentations, slide shows, “fish food” for lunch
FRIDAY JUNE 27, SATURDAY JUNE 28 AND SUNDAY JUNE 29, 2014
HOSTED BY MARE ISLAND HERITAGE TRUST, GOLDEN GATE RAPTOR OBSERVATORY AND GOLDEN GATE AUDUBON SOCIETY
SPONSORED BY Dolphin Charters
INFO: 707-249-9633
MAREISLANDPRESERVE.ORG

FREE EVENT

Oakland Trib
Thursday, July 31, 2014

NEW RESIDENT’S CALL S.F. BAY HOME

Raptors rebound

Once inclined to simply pass over and grab a snack or two, ospreys are now fishing and nesting along bay shorelines, making the move from inland lakes

Ospreys use a nesting box at the Chevron refinery in Richmond, built to keep them from nesting on a power pole

By Denis Guff
deniguff@mercurynews.com

RICHTON — The osprey, a fierce and powerful fishing bird, used to be just another San Francisco Bay shoreline visitor, flying over and feeding without settling down roots.

These days, however, the acrobatic divers are becoming natives, constructing elaborate stick nests on cranes, poles and other man-made structures.

Ospreys nested in 32 places around the bay shorelines this year and 26 last year, up sharply from a single nest in the early 1990s. Most of the new nests are in the East and North Bay.

Before that, ospreys steered clear of the bay, preferring to nest in areas far from the Bay Area, or inland, especially near lakes.

Researchers aren’t sure why the birds have made the move. They speculate it may have something to do with changes in bay water quality, clarity and abundance of fish.

Or it may have something to do with bald eagles — another species on the upswing — crowding ospreys out of their prime nesting spots near lakes in the North Bay.

“We don’t have all the answers, but the nesting territory is a significant change that has occurred in a relatively

Osprey facts

A large raptor, the osprey is the only North American bird that feeds almost exclusively on fish.

Wing span: 59 to 75 inches

Adult weight: 3.7 to 4.4 pounds

Fishing skills: Ospreys catch fish on one of every four dives, making it catch about once every 12 minutes of fishing.

Frequent hibernator; an osprey may lay 20-30,000 air miles in migrations over the course of 18 to 20 years.

Nests: Ospreys have two to three eggs on average. Such nests can be 10 to 11 feet deep and 3 to 6 feet in diameter — easily big enough for a human to sit in.

Risks: Ospreys build their nests with sticks and other scrap up materials — including fishing line, which can wrap around and injure the chicks.

Sources: Cornell Lab of Ornithology and National Geographic.
Human Threats to Ospreys and Their Nests

Threats to Individual Ospreys
• **Persecution** – Shooting, egg collectors, millinery. Less of a problem than in the past, although Atlantic Coast Osprey sometimes killed at aquaculture sites on their wintering grounds in Central, South America.

• **Entanglement** – Common hazard for aquatic bird species, especially piscivores. Abandoned fishing line and gear, plastic twine may be brought as nest material, or entangled while foraging.

• **Electrocution** – Numerous nests are on power poles: A nestling died in 2014 in a nest on utility pole at Mare Island.

Threats to Osprey Nests
• **Deterioration, Collapse** – Numerous nests are on old, derelict structures.

• **Shoreline Development** – Numerous nests on land slated for development.

• **Removal** – Nests may be removed from structures, equipment due to potential conflict with their use. Legal before eggs or young, but Ospreys are very persistent once they select a nest site.
Successful Use Of Nest Platforms

Chevron, San Pablo Peninsula, Richmond
Point Molate, Richmond

March 5, 2014

March 12, 2014
Point Molate, Richmond

March 11, 2014

June 27, 2014
Crockett (PG&E)

June 11, 2013

Chevron Long Wharf, Point Richmond

March 19, 2014
Brickyard Cove, Richmond
(Shirley Doell and Richmond Yacht Club)
Mare Island (Island Energy)
Point San Pablo, Richmond (Chevron)

Mare Island (XKT Engineering)
OSPREY NEST SUBSTRATES IN 2020
Web Nestcam at Port of Richmond
SFBayOspreys.org
FISH BROUGHT OBSERVED AT THE WHIRLEY CRANE NEST
MARCH-AUGUST, 2019 – 723 Fish

- Jacksmelt, 396
- Striped Bass, 237
- Plainfin Midshipman, 27
- Starry Flounder, 19
- Other Flatfish, 12
- Halibut, 5
- Bat Ray, 4
- Salmonid, 1
- Shad, 2
- Other/Unidentified, 16

Compiled by Craig Griffeath
Osprey Spring Migration Routes

From Martell, et al, 2014
Nesting & Winter Locations of Pacific Northwest Ospreys

From Martell, et al, 2001
Banding of Osprey Nestlings from the Whirley Crane Nest
(Teresa Ely, Ben Dudek, Anne Ardillo, Step Wilson)

June 16, 2017

May 16, 2019
“Of all the raptors, the Osprey is the one that can live most happily with modern man, if given a chance.”

Roger Tory Peterson