

Fish and Wildlife of Alaska's North Slope

TUNDRA SWANS

Since 1986, ConocoPhillips scientists and industry consultants have conducted a variety of wildlife studies in the oilfield region of the Alaskan North Slope. ConocoPhillips has chosen tundra swans (*Cygnus columbianus* or *qugruk*) for long-term monitoring to assure their well-being and also to use them as an indicator of the overall health of the abundant waterfowl and shorebird communities that use the oil-

fields. Included in this work has been studies of the waterfowl and shorebirds that use the oilfields in summer for feeding, nesting, and raising their young.

Tundra swans are common nesters in the North Slope oilfields, they generally mate for life, and they are sensitive to disturbance within their nesting territories. There are about 200,000 tundra swans in North America, approximately half of which winter in California and half on the Atlantic Coast. The North Slope swans are at the western extreme of the eastern wintering population that nest from northern Alaska across Arctic Canada to Hudson's Bay. After a

remarkable journey southeast in the fall, the North Slope swans winter in Chesapeake Bay, sometimes within sight of the Washington Monument, and in coastal sections of Maryland, Virginia, and North Carolina. They provide bird watchers with much-valued winter viewing in a number of areas and are hunted in some places.

Tundra swans are one of the first birds to arrive on the Arctic Coastal Plain each spring. Often swans arrive in mid-May when ice and snow are still melting and soon begin nesting. In the Kuparuk oilfield, tundra swans tend to select nest sites less than 100 meters from large lakes and often return to the same nest location each summer. After incubating their eggs for approximately 30 days, they hatch a brood of one to five



Tundra swan (*Cygnus columbianus* or *qugruk*).

young, called *cygnets*. Both parents guard the cygnets until they fledge just before fall migration in early October, around the time of freeze-up.

The highest breeding densities of tundra swans on the North Slope occur near the Colville and Sagavanirktok river deltas, both within the developed oilfield region. De-



Swans rear broods of one to five young, called cygnets.

spite increasing numbers of tundra swans in this region, concerns remain that noise, traffic, and aircraft associated with new developments could disturb them unless care is taken. Therefore, it is important that ConocoPhillips continue to document locations of swan nests and brood-rearing areas before planning any new developments.

The number of swan nests in the Kuparuk oilfield vary each year but have ranged from 44 to 116, with an average of 81 (1989 to 2004). New roads and drill pads at Kuparuk have been located away from known swan nest sites. Disturbance studies showed that buffers of about one mile allow normal nest success. Nesting

and brood-rearing habitats have been evaluated to establish the swans' habitat preferences for these events. These areas, as well as actual historical nest locations, have been mapped using new geographical information system (GIS) computer programs. These maps allow ConocoPhillips development planners to avoid potential swan habitats, even if previous swan activity at that location had not been recorded.

Data on nest success collected over the years show that many times when nest counts were down from previous years, a late spring thaw was the primary cause of nest failure. Disturbance studies have documented few nests abandoned due to oilfield activities. Swans appear to accept routine oilfield activities, especially if one-mile buffers

can be maintained around nests and brood-rearing areas. However, even when one-mile buffers cannot be maintained, nesting swans can often tolerate routine noise.

When the Alpine airstrip was being sited, the locations of surrounding lakes required that the airstrip be placed near two active swan nests. In cooperation with the U.S. Fish and Wildlife Service, a study of the impacts from that airstrip on local nesting birds was conducted. ConocoPhillips committed to reduce aircraft activity as much as possible at this airstrip during the nesting season. The airstrip did not affect the nesting success of swans in the area during the four years of monitoring. Both of the closest swan pairs continue to use

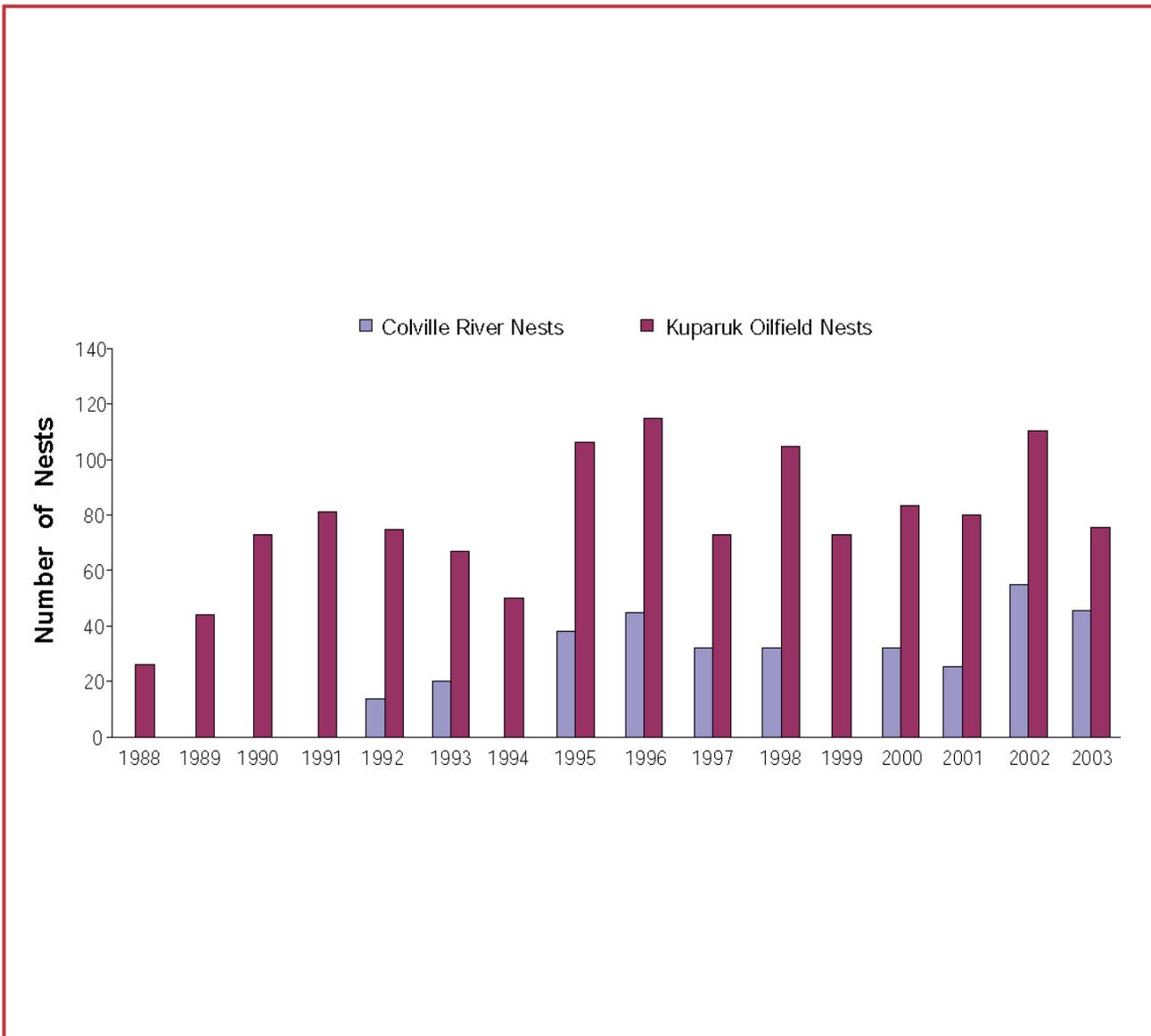


The number of swan nests in the Kuparuk oilfield varies each year from 44 to 116.

those nest locations despite being only one-half mile or so from the airstrip and directly under takeoff and landing flight paths. The swan families seem to tolerate a certain

amount of nearby construction noise and truck traffic but are disturbed by people walking on the tundra. We can assume most swans nesting here now were hatched and raised in the oilfield region, and their fear of humans stems from experience in the migration or wintering areas.

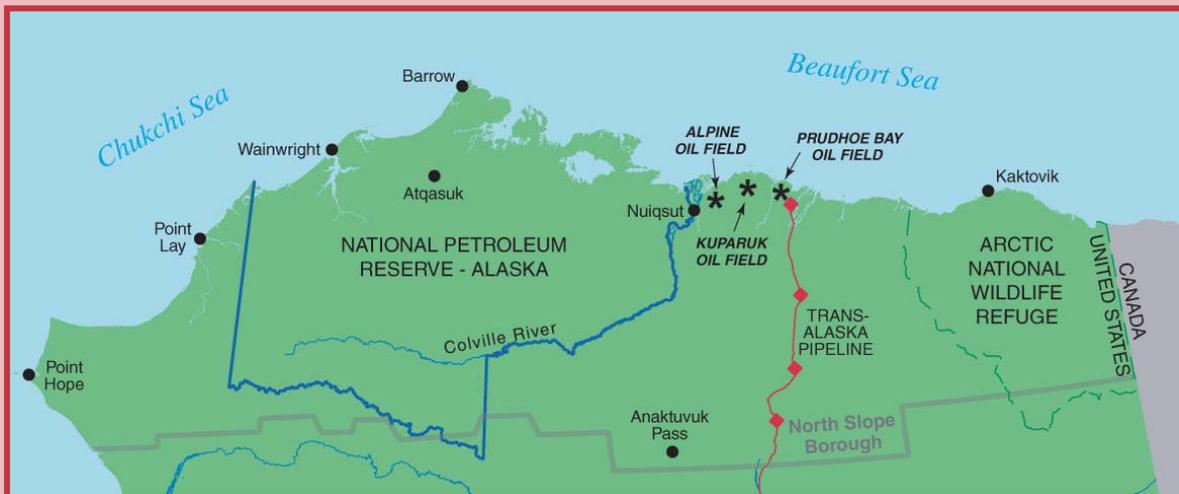
The combination of reducing activity during nesting and maintaining proper buffers around known nests and brood-rearing lakes has been effective in maintaining healthy breeding swan populations in the oilfield region. ConocoPhillips will continue to gather baseline information on tundra swan nesting and brood-rearing locations and will use these data to guide the design and operation of new oilfield developments.



Nesting effort for tundra swans in the Colville River delta and Kuparuk oilfield, 1988-2003.



Studies show that swans tolerate routine oilfield activities.



For Additional Information, Contact:

Environmental Studies Program
ConocoPhillips Alaska, Inc.
P.O. Box 100360
Anchorage, Alaska 99510-0360
Telephone (907) 276-1215

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