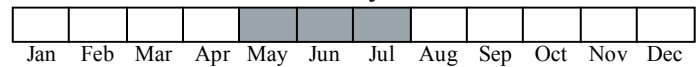


Best Survey Period



**Status:** State threatened

**Global and state rank:** G5/S2

**Family:** Laridae (gull and tern family)

**Total range:** The Caspian Tern is found throughout the world. In North America, six distinct populations breed on coastal and inland waters. On the Pacific coast, the species breeds locally in Washington and California, and south to Baja California. On the Atlantic coast, breeding occurs locally in Newfoundland and Quebec, and from Virginia to northern Florida. Nesting colonies also occur from Florida to Mexico along the Gulf coast. Inland populations reside in the Great Lakes northwest to central Manitoba, and locally in the Great Salt Lake region (Spendelov and Patton 1988). Wintering grounds include the southern coast of the United States, the West Indies, and northern South America (Ludwig 1942; Ludwig 1965).

**State distribution:** Caspian terns currently nest in eight counties within the State. Colonies are recorded from islands and coastal areas in Alpena, Alcona, Arenac, Bay, Charlevoix, Delta, Emmet, and Mackinac counties. Some of these nesting sites have been established since the early 1980s, including one on an artificial disposal dike in Saginaw Bay. Nesting is possible but not confirmed in Antrim, Cheboygan, Chippewa, Huron, Leelanau, Manistee, Presque Isle, and Tuscola Counties.

**Recognition:** The Caspian tern is the largest of the terns, with a **wingspan averaging 4.5 feet**. Its size, **stout red bill**, and **lack of a deeply forked tail** distinguishes it from other white terns found in the state. Its **black cap**, **large**

**red bill**, and tern-like habit of flying slowly with its bill pointed downward separates it from the gulls. The **low harsh call** of the Caspian tern sounds similar to *karr* or *kraa-ah* and is given frequently while in flight. The orange feet of immature birds distinguish them from fall-plumaged adults which have black feet (Evers 1994).

**Best survey time:** Although Caspian terns can be seen in Michigan from mid-April through September, the optimal time to survey for Caspian terns is during May, June and July.

**Habitat:** Nesting habitat of the Caspian tern is open sandy or pebble beaches, usually on islands in large bodies of water. The nest consists of a shallow depression near the water line. Water levels, competition from other species in the Laridae family, and vegetative succession are factors that influence the selection of sites for a nesting colony. Artificial nesting sites, such as the disposal dike in the Saginaw Bay, have proven to be acceptable nesting habitat (Scharf and Shugart 1983). A problem identified with this, and similar artificial sites is the possibility of toxins entering the surrounding ecosystem and negatively impacting the population. Foraging habitat can consist of almost any large body of water where their prey of alewife (*Alosa pseudoharengus*), American smelt (*Osmerus mordax*), or yellow perch (*Perca flavescens*) is common (Ludwig 1991).

**Biology:** Caspian terns are a migratory species. They arrive at their breeding grounds from mid-April to mid-May. Almost all individuals return to the same general breeding area for more than one season (Cuthbert 1988). Caspian terns nest in colonies, often within several feet of



each other and other species of the Laridae family. (Ludwig 1965). Clutches with an average of two or three eggs each appear from mid-May to mid-July. Both males and females incubate the eggs for approximately 26 days until hatching in July and August. The young fledge 36-56 days after hatching. After migrating to their wintering grounds, first year birds remain through the first summer, and don't return to their breeding grounds until the second summer after their fledging (Ludwig 1968, Cuthbert 1988)

The rapid expansion of the alewife into the upper Great Lakes in the 1950s provided Caspian terns with a plentiful food source. The population size in Michigan grew in response, from approximately 525 nesting pairs in 1962 (Ludwig 1962), to an average of 1,800 nesting pairs between 1975 and 1982 (Evers 1994).

**Conservation/management:** Offspring tend to return to the region of their natal colony to breed and adults tend to return to the same colony to breed if nesting the previous year was successful. (Ludwig 1968, Cuthbert 1988). Combined with the geographic separation of colonies, this suggests there is little mixing between populations of different regions. This being the case, the Great Lakes population maintains itself primarily through reproduction with little immigration of individuals from other regions. Therefore, local perturbations could cause a dramatic decline in a region's population (Shugart et al. 1978). The Caspian tern is listed as threatened in Michigan because of the possibility of a local decline under these circumstances. The Caspian tern has never been common or widespread in the Great Lakes region. Current factors believed to be negatively affecting the population are interspecific competition, human disturbance, environmental contaminants, and a lack of isolated island habitat (Evers 1994). Washouts caused by high waves can destroy entire nesting colonies. Studies in the region attributed over half of nest failures in Caspian tern colonies to washouts (Shugart et al. 1978, Cuthbert 1988). Although nest counts for the species have been relatively high in recent times, there is still concern for the viability of the Great Lakes population. The mean fledging rate of 1.46 chicks per nest in the 1962-1967 period (Ludwig 1965, Ludwig 1968) declined to .61 in the 1986-1989 period (Ludwig et al. 1990). Evidence has been presented that PCB's have put Great Lakes populations under severe stress. High levels of this toxin in eggs correlate with rising rates of deformities, embryonic abnormalities, and depressed hatching rates (Ludwig and Kurita 1988, Tillitt et al. 1988). Conservation efforts should concentrate on the protection of nest sites from human disturbance. Terns using contaminated sites for nesting should be provided with alternative breeding sites with uncontaminated substrate. Colonies should be monitored on a regular basis to document changes in numbers of breeding pairs, reproductive success, and impacts of toxins (Evers 1994).

**Research needs:** A better understanding of the effects of toxins on the Caspian Tern and related species is needed.

In particular, how floods, dredging, and other physical events can mobilize toxicants from contaminated sediments into the aquatic food web needs to be researched.

**Related abstracts:** open dunes, common tern

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