White-winged Scoter

Melanitta fusca

Class: Aves
Order: Anseriformes

Conservation Status

NatureServe:	*Agency:*	
G Rank: G5	USFWS:	IUCN: Least Concern
S Rank: S5B,S5N	ADF&G: Species of Greatest Conservation Need	

Final Rank

Conservation category: **VIII. Yellow**

VIII = low status and either high biological vulnerability or high action need

Category	Range	Score
Status:	-20 to 20	-3
Biological:	-50 to 50	-28
Action:	-40 to 40	4

Higher numerical scores denote greater concern

Status - variables measure the trend in a taxon's population status or distribution. Higher status scores denote taxa with known declining trends. Status scores range from -20 (increasing) to 20 (decreasing). **Score**

Population Trend (-10 to 10) 2

It is difficult to detect trends for this species because it is hard to differentiate between white-winged scoters and other scoters. Consequently, scoter species are often lumped together during the main survey for breeding waterfowl in North America (the USFWS Waterfowl Breeding Population and Habitat Survey). Moreover, the timing of this survey is inadequate for late-season nesters such as scoters and scaup. Nevertheless, some data are available. Surveys in Alaska for the three scoter species that breed in the state suggest declines from the 1980s to the 2000s and increasing trends since then (Flint 2013; Bowman et al. 2015). Species-specific data indicate an increasing trend in Alaska between 1993 and 2012 (Bowman et al. 2015), but the authors still consider their population size to be below historic levels. Population estimated on the Yukon Flats National Wildlife Refuge (NWR), which supports the largest population of white-winged scoters in the state, have been stable for the past 13 years (Guldager et al. 2016).

Distribution Trend (-10 to 10) -5

Although no formal studies have been conducted, its distribution is suspected to be stable (T. Lewis, ADF&G, pers. comm.). There is no evidence of contractions to their breeding or wintering distribution and the habitats they occupy (winter - temperate marine, breeding - boreal forest) are thought to be stable (T. Lewis, ADF&G, pers. comm.).

Status Total: -3

Biological - variables measure aspects of a taxon's distribution, abundance and life history. Higher biological scores suggest greater vulnerability to extirpation. Biological scores range from -50 (least vulnerable) to 50 (most vulnerable). **Score**

Population Size (-10 to 10) -10

Unknown, but likely >25,000. Surveys on the Yukon Flats NWR, which support the largest breeding population of white-winged scoters in the state (qtd. in. Guldager et al. 2016), estimate a population index of 15,403 individuals (based on a 13-year mean; Guldager et al. 2016).

Range Size (-10 to 10) -8

Breeds in boreal forest wetlands across interior Alaska from the Canadian border west to Innoko and Koyukuk,

south to the Wrangell Mountains, and north to the Brooks Range and the Arctic National Wildlife Refuge (Johnson and Herter 1989; ACCS 2017a; Brown and Frederickson 2019). Summer sightings in southeast Alaska (Hodges et al. 2008) and on the Arctic Coastal Plain (Johnson and Herter 1989) are of non-breeding and post-breeding individuals, respectively. Overwinters from the Aleutian Islands east to the Gulf of Alaska and along the coast to southeast Alaska. Wintering range is most restricted and is estimated at ~200,000 sq. km., estimated in GIS.

Population Concentration (-10 to 10) -10

White-winged scoters typically migrate in small flocks up to 100 birds (Brown and Fredrickson 2019), though larger groups of several hundred individuals have been reported in winter and during molting (e.g. Isleib and Kessel 1973; Butler 1998; Heinl and Piston 2009). Coastal and offshore waters from Prince William Sound to southeast Alaska are important areas during migration (Isleib and Kessel 1973; Butler 1998; USFWS 2011) and overwinter (Hodges 2011; USFWS 2011). Important staging areas have also been identified in southwest Alaska e.g. Port Moller and Ugashik Bay (USFWS 2011). A large number of (presumed) non-breeding birds also remain in southeast Alaska during the summer (Hodges et al. 2008). Given population size and its widespread distribution year-round, number of sites is likely >250.

Reproductive Potential

Age of First Reproduction (-5 to 5) -3

Breeds at two years of age (Brown and Fredrickson 2019).

Number of Young (-5 to 5) 1

Average clutch size is between 8.3 to 9.6 eggs and ranges from 5 to 19 (Brown and Brown 1981; Brown and Fredrickson 2019). On the Yukon Flats, mean clutch size was 8.1 ± 0.2 eggs (Safine 2005). However, a large proportion of the adult female population (28%) did not breed every year (Safine 2005). Females lay a single clutch per year and do not renest in the event of nest failure (Brown and Fredrickson 2019; T. Lewis, ADF&G, pers. comm.).

Ecological Specialization

Dietary (-5 to 5) 1

Consumes mainly benthic freshwater invertebrates on breeding grounds (crustaceans, insect larvae) and benthic marine invertebrates on wintering grounds (Anderson et al. 2008; Brown and Fredrickson 2019). Scoters' winter dietary niche has been described as "generalists on molluscs, mostly bivalves" (Sanger and Jones 1984). Indeed, bivalves are an especially important prey item in winter (Sanger and Jones 1984; Anderson et al. 2008; Palm et al. 2012). When bivalves are unavailable, white-winged scoters are flexible in their dietary choices, consuming fish, crustaceans, polychaete worms, and echinoderms (Palm et al. 2012). Scoters are also capable of responding to pulsed resources e.g. altering movement and foraging behaviors in response to herring spawning events (Lewis et al. 2007; Lok et al. 2008; Heinl and Piston 2009).

Habitat (-5 to 5) 1

Breeds in boreal and prairie-parkland habitats. Tends to avoid graminoid sites, preferring to place their nest in shrub or forested habitat that provide good nesting cover or escape from predators (e.g. on islands) (Brown and Brown 1981; Safine and Lindberg 2008). While nests are often located far from shore (Brown and Brown 1981; Safine and Lindberg 2008), Safine (2005) considered White-winged scoters to be generalist within the broader shrub-forest habitat, placing nests at various distances from the shoreline. Young are reared on lakes in shallow, vegetated areas (Brown and Brown 1981; Safine 2005). On the Yukon Flats, occupancy of lakes by brood-rearing scoters was best explained by lake size >100ha and high amphipod densities (Lewis et al. 2015). Overwinters in protected coastal areas such as bays and inlets that support abundant mollusc densities (Lewis et al. 2008b; Gunn 2009; Brown and Frederickson 2019).

Biological Total: -28

Action - variables measure current state of knowledge or extent of conservation efforts directed toward a given taxon. Higher action scores denote greater information needs due of lack of knowledge or conservation action. Action scores range from -40 (lower needs) to 40 (greater needs). **Score**

Management Plans and Regulations (-10 to 10) -10

Protected by the Migratory Bird Treaty Act (MBTA 1918). Subsistence harvest and recreational hunting is permitted, but subject to regulations (ADFG 2018e; AMBCC 2018). An action plan is in place for this species (USFWS 2011).

Knowledge of Distribution and Habitat (-10 to 10) 2

Little is known about distribution and habitat use in Alaska, though recent work has furthered our understanding. Studies have addressed migratory movements, identified staging and molting areas, and characterized winter habitat requirements (Gunn 2009; reviewed in USFWS 2011). Safine (2005) was the first to study the breeding ecology of white-winged scoters in Alaska. More recently, Lewis et al. (2015) investigated habitat selection of brood-rearing scoters. Both of these studies were conducted on the Yukon Flats NWR. Our knowledge of other breeding populations in Alaska remains scarce.

Knowledge of Population Trends (-10 to 10) 2

Current surveys are inadequate for detecting trends. Because it is hard to differentiate between scoter species, scoters are often lumped together during surveys (Bowman et al. 2015). Moreover, the main survey for breeding waterfowl in North America (the USFWS Waterfowl Breeding Population and Habitat Survey) is inadequately timed for late-season nesters such as scoters and scaup (Guldager et al. 2016). To address these limitations, USFWS has flown annual scoter and scaup surveys on the Yukon Flats NWR since 2001 (Guldager et al. 2016). Other localized surveys occur sporadically and are reviewed in USFWS (2011).

Knowledge of Factors Limiting Populations (-10 to 10) 10

White-winged scoters are difficult to study during the breeding season because of their propensity for nesting in low densities across vast landscapes. Little is known about their ecology and the factors that limit its population in Alaska or elsewhere (USFWS 2011). Compared to studies in Canada, researchers on the Yukon Flats noted lower nest and female survival, but higher duckling survival (Safine 2005). Nearly 30% of adult females did not breed every year, which may act to further restrict population growth rates (Safine 2005). Predation is the main cause of mortality for eggs, ducklings, and females on breeding grounds (Safine 2005; Brown and Fredrickson 2019). Although white-winged scoters rely heavily on bivalves in the winter, food does not appear to be limiting in at least some parts of their range (Lewis et al. 2008b). The scoter's large body size may offer some protection from variations in food resources and energetic stressors during winter and molting seasons (Anderson and Lovvorn 2011; Uher-Koch 2013). It is unknown whether hunting is a significant source of mortality (Safine 2005). Subsistence harvest data are limited but can exceed 12,500 birds per year in Alaska (Naves 2015).

Large die-offs have been reported on molting grounds in southeast Alaska and in Washington (Henny 1995; USFWS 2011; Jones et al. 2017). In southeast Alaska, the cause for the die-off was unknown: no infectious diseases were found, and levels of some contaminants were high but largely inconclusive (Henny 1995). In Washington, the die-off was correlated with the timing of a harmful algal bloom (HAB; Jones et al. 2017). HABs may become an increasingly serious threat for marine birds as the frequency and magnitude of these blooms have been linked to climate change (Jones et al. 2017).

Action Total: 4

Supplemental Information - variables do not receive numerical scores. Instead, they that are used to sort taxa to answer specific biological or management questions.

Harvest:	Substantial, regulations
Seasonal Occurrence:	Year-round
Taxonomic Significance:	Monotypic species
% Global Range in Alaska:	>10%
% Global Population in Alaska:	<25%
Peripheral:	No

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Review status: Peer-reviewed

Version date: 4/3/2019

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