Lesser Scaup

Aythya affinis

Class: Aves
Order: Anseriformes

Conservation Status

NatureServe:	*Agency:*		
G Rank: G5	USFWS:	IUCN: Least Concern	Audubon AK:
S Rank: S3N,S5B	BLM:	ADF&G: Species of Greatest Conservation Need	

Final Rank

Conservation category: **IX. Blue**

IX = low status and low biological vulnerability and action need

Category	Range	Score
Status:	-20 to 20	-5
Biological:	-50 to 50	-34
Action:	-40 to 40	0

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) 0

Population trend is difficult to determine because surveys do not distinguish between lesser and greater scaups. Moreover, trends appear to vary regionally (Ross et al. 2012). While continental scaup numbers are declining (Ross et al. 2012; USFWS 2018), most populations breeding in Alaska are stable (Afton and Anderson 2001; Ross et al. 2012). One exception is the Yukon Flats population, which has been declining for decades (Corcoran et al. 2007; Ross et al. 2012) and supports the largest breeding scaup population in Alaska (qtd in. Guldager et al. 2016). In this situation, where the answer spans greater than 3 response categories (from stable, score -6, to declining, score -10), the variable is considered Unknown and a score of 0 is applied.

Distribution Trend (-10 to 10) -5

Stable. While there has been concern over the impact of drying wetlands in the Yukon Flats (e.g. Corcoran et al. 2007), a study of 77 lakes in the area found no change in scaup occupancy over time (Lewis et al. 2016).

Status Total: -5

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

>25,000. Most surveys report combined population estimates for lesser and greater scaups because it is difficult to distinguish between the two species. In 2018, the Waterfowl Breeding Population Survey estimated 652,245 greater and lesser scaups across all strata (strata 1-11; USFWS unpublished data, obtained upon request). Lesser scaup occur primarily in strata 2-6, where 268,447 scaup were estimated (USFWS unpublished data; D. Groves, USFWS, pers. comm.). Surveys on the Yukon Flats, which supports the largest population of lesser scaup in Alaska, estimated 22,457 scaups in 2015 (Guldager et al. 2016).

Range Size (-10 to 10) -10

>400,000 sq. km. Breeds in boreal forest and forest-tundra habitats from the Alaska Range north to the Brooks Range, and from Canada west to the treeline (Anteau et al. 2014). The wintering distribution of lesser scaup in Alaska is not well-documented. Some of the population overwinters in coastal waters from southcentral to

southeast Alaska (Armstrong 2008; Anteau et al. 2014). For example, >250 individuals have been observed in Kachemak Bay (T. Lewis, ADF&G, pers. comm.) and smaller flocks (between 15-40 individuals) have been reported in southeast Alaska (Heinl and Piston 2009). Most of the population likely overwinters further south along the Pacific coast from British Columbia to Central America (Anteau et al. 2014) and we therefore rank this question based on its breeding distribution.

Population Concentration (-10 to 10) -6

Although the Yukon Flats supports the largest numbers of breeding lesser scaup in Alaska (qtd. in. Guldager et al. 2016), lesser scaup are widely distributed within this large area and throughout their range in Alaska. Lesser scaup also form large flocks during molting, migration, and in winter (Anteau et al. 2014). Important concentration areas have not been identified in Alaska, but number of sites is likely between 25 and 250 (T. Lewis, ADF&G, pers. comm.).

Reproductive Potential

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

Females breed within their first year (Anteau et al. 2014).

Number of Young (-5 to 5) 1

Females usually lay one clutch per year (Martin et al. 2009). Throughout its range, clutch size ranges from 6 to 14 eggs (Anteau et al. 2014). In Alaska, mean clutch sizes between 8 and 9.8 have been reported (Walker and Lindberg 2005; Anteau et al. 2014). Some populations may have a high proportion of non-breeding females, as was documented by Martin et al. (2009) for the Yukon Flats.

Ecological Specialization

Dietary (-5 to 5) -5

Diet is fexible and changes in response to spatial and temporal availability (Anteau et al. 2014; DuBour 2019). In the summer, lesser scaup eat aquatic invertebrates (e.g. insects, crustaceans, and mollusks), though in some months seeds and plant material may comprise an important proportion of their diet (reviewed in Anteau et al. 2014). Amphipods are important food sources for both adults and ducklings (Fast et al. 2004; Lewis et al. 2015; DuBour 2019).

Habitat (-5 to 5) 1

In Alaska, nest in wetlands in boreal and forest-tundra habitats. They are associated with large wetlands and waterbodies (Toft et al. 1982; Fast et al. 2004; Corcoran et al. 2007; Lewis et al. 2015), and prefer waterbodies with a high abundance of amphipod prey (Fast et al. 2004; Anteau and Afton 2009; Lewis et al. 2015). Nests on the Yukon Flats were usually very close to open water and concealed in tall graminoids (Corcoran et al. 2007).

Biological Total: -34

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 under the Migratory Bird Treaty Act (MBTA 1918). Sport hunting and subsistence harvest are permitted, but subject to regulations (ADFG 2017e; AMBCC 2018).

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

Breeding distribution is captured during aerial surveys (e.g. Mallek and Groves 2011; Guldager et al. 2016), though survey limitations (see Monitoring section below) and remote nesting habitat preclude a complete understanding of their distribution. Habitat associations have been studied on the Yukon Flats (Corcoran et al. 2007; Lewis et al. 2015; 2016), but little information is available outside of this region. Distribution during migration and overwinter is not well-documented (Anteau et al. 2014).

Knowledge of Population Trends (-10 to 10) -2

Compared to other waterfowl, scaup are late-season nesters. Consequently, most multi-species surveys are poorly timed for optimal detection (Guldager et al. 2016). Moreover, surveys cannot distinguish between lesser and

greater scaup, so a combined estimate is usually provided. Nevertheless, scaup are monitored throughout most of their range in Alaska by the Alaska-Yukon Waterfowl Breeding Population Survey (Mallek and Groves 2011) and on the Yukon Flats by aerial surveys that are specifically designed for monitoring scaup and scoter populations (Guldager et al. 2016). Between the various surveys, data are adequate for detecting statewide trends (e.g. Ross et al. 2012; USFWS 2018).

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

Little is known about the factors responsible for declines in the continental scaup population from the 1980s to early 2000s. Neither heavy metal contamination nor harvest rates seem to be limiting scaup populations (Afton and Anderson 2001; Fox et al. 2005; Matz and Rocque 2007; Arnold et al. 2016). Instead, data suggest declines in several parameters including female survival, recruitment, and body condition (Afton and Anderson 2001; Anteau and Afton 2004; Arnold et al. 2016). Declines in springtime body condition may be the result of a shift to a lower-quality diet in the spring ("spring condition hypothesis"; Anteau and Afton 2006). In Alaska, breeding probability and duckling survival were both correlated with female body condition (Walker and Lindberg 2005; Martin et al. 2009). Other factors such as climate change, predation, and parasite load have been proposed (Ross et al. 2015; Merrill et al. 2018). At present, there is no consensus as to which factors are most responsible for observed declines.

Studies in Alaska have largely focused on the declining Yukon Flats population. Researchers have documented low recruitment (Martin et al. 2009), a high proportion of non-breeding females (Martin et al. 2009), and low nest survival (Corcoran et al. 2007). Low nest survival has also been reported on the Minto Flats; nest failures were most often due to predation and flooding (Walker and Lindberg 2005; Walker et al. 2005). Adult females may also be particularly susceptible to predation during the breeding season (Brook and Clark 2005; Martin et al. 2009). Based on dietary studies, DuBour (2019) suggested that prey availability on the Yukon Flats was not limited for ducklings, but that low densities of amphipods may negatively impact duckling growth. Climate change may impact suitable habitat through wetland drying (Corcoran et al. 2007), but Lewis et al. (2016) found that scaup occupancy on the Yukon Flats has remained unchanged despite evidence of shrinking lakes.

Action Total: 0

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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