



# Fortymile Caribou Herd News

Alaska Department of Fish and Game, Division of Wildlife Conservation, Summer 2023

## What is the management strategy for the FCH now?

Now that the herd is smaller, harvest quotas will be reduced to lessen the impact of harvest on FCH growth while still providing limited hunting opportunity. It is unknown if the herd is currently within the carrying capacity of their range. Biologists will continue to monitor Fortymile caribou. When the nutritional condition of caribou stabilizes or improves, it will be evidence that the range can nutritionally sustain the herd at the current size. Harvest quotas are likely to remain lower into the near future, but managers will respond when there are changes in survival and productivity.

## 2023 season

Hunters can expect smaller quotas for the upcoming 2023 season than the 2022 quota of 1,200. The final quota will be determined when more is known about productivity and current herd size from calving and abundance surveys. Although the season dates and bag limits are set for the state RC860 registration hunt as August 10 - September 30 with a bag limit of 1 bull for each hunter, hunters should be aware that the season dates may be adjusted to prevent overharvest if caribou are too close to the road. The winter season is October 27 - March 31 with a bag limit of 1 caribou, but hunters should be aware the winter hunt could change depending on fall harvest, herd composition, and finalized counts from summer abundance surveys. For more information or if you have any questions, contact your local ADF&G office.

While the quota for Fortymile caribou is less than it has been for the past several years, it remains a road accessible hunt. Hunt zone maps for RC860 and RC867 are available at the ADF&G and Bureau of Land Management (BLM) offices in Fairbanks, Tok, and online (ADF&G: [www.hunt.alaska.gov](http://www.hunt.alaska.gov) or BLM: [www.blm.gov/alaska](http://www.blm.gov/alaska)). Hunters should also be aware that BLM has set additional off-highway vehicle travel restrictions in the White Mountains National Recreation and Steese National Conservation Areas.

## A thank you to hunters

Hunters were asked to submit jaw samples in the fall of 2021 and 2022, and required to submit jaws for the winter hunt in 2020, 2021, and 2022. There was a compliance rate of over 90%. Thank you to all hunters who submitted a jaw sample! Front teeth were extracted to obtain the age of the animal, and the tissue on the jaw was collected to provide a DNA sample for genetic analyses, yielding an unprecedented wealth of new information about the Fortymile herd for ongoing research. If successful, part of this research may provide new and invaluable methods to estimate caribou herd/population size and trend.



## Current status of the Fortymile caribou herd

Biologists from the Alaska Department of Fish and Game (ADF&G) have monitored the Fortymile caribou herd (FCH) intensively since the early 1990s. All signs indicate that caribou in the herd have experienced nutritional stress over the past decade. Put simply, the herd outgrew the carrying capacity of their range—the number of caribou that the habitat can support. The signs of nutritional stress may have appeared as early as 2010.

This newsletter outlines long-term biological data collected by ADF&G biologists including birth rates, calf weights, survival rates, and herd composition. It also explains the efforts by managers over the last several years to reduce the Fortymile herd to a size that the range can support.



## Recent actions → successful reduction of the Fortymile caribou herd size

In 2020, managers increased the harvest quota for Fortymile caribou, knowing the herd had begun to decline. Their objective was to facilitate a rapid reduction in herd size to: 1) prevent further damage to the Fortymile range from overgrazing; and 2) bring the herd to a sustainable size as quickly as possible.

For 2020 and 2021, the harvest quota was set at 10,000 and 5,000 caribou respectively. Between natural mortality and harvest, the goal was to reduce the herd below 50,000 caribou, which was approximately the size of the herd where the first signs of nutritional stress appear in the long-term monitoring data. The decision to harvest more caribou during the decline was based on the biological principle of compensatory mortality, meaning that hunters were harvesting numbers of caribou that were likely to have died naturally anyway. Managers recognized that the herd was susceptible to a natural decline because of decreases in both survival and reproduction. Allowing hunters to harvest more caribou was intended to speed the process of reducing the herd to a size that the habitat could support, while allowing hunters to fill their freezers.

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Hunters are important founders of the modern wildlife conservation movement. They, along with trappers and sport shooters, provided funding for this publication through payment of federal taxes on firearms, ammunition, and archery equipment, and through state hunting license and tag fees.



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Division of Wildlife Conservation  
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# Monitoring the Fortymile Caribou Herd

## Why do caribou herds fluctuate in size?

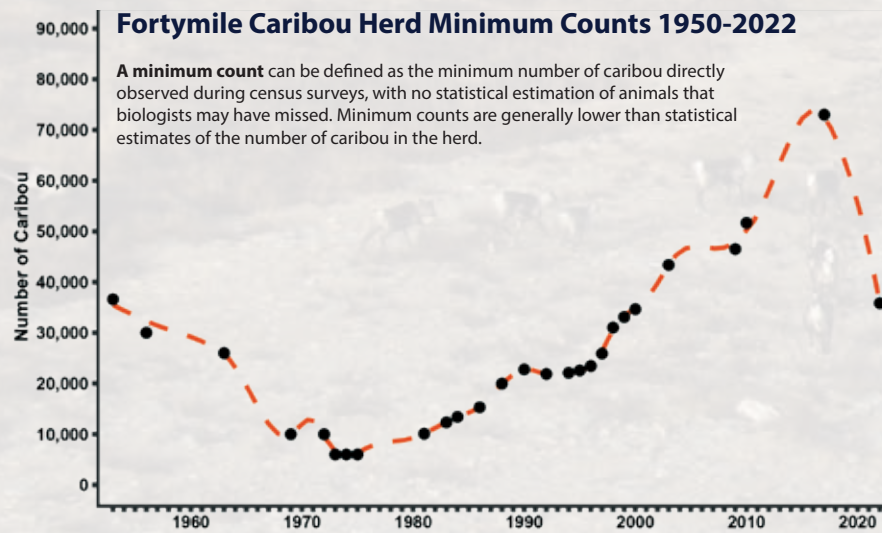
Caribou populations are known to have dynamic fluctuations over time. Why herds fluctuate so dramatically is not fully understood. Many interacting factors likely contribute to these large population cycles, including the effects of predators, severe weather, disease and parasites, and the quality of habitat and forage across herd ranges. While sizeable fluctuations in caribou herds may not be ideal for predictable harvest quotas or consistent hunting regulations, these fluctuations are characteristic of large caribou herds in Alaska.

## How do we count caribou?

The best method ADF&G currently has for assessing caribou herd size is a photocensus survey. Biologists use an ultra-high-resolution camera mounted on the bottom of an aircraft to photograph as much of the herd as possible within a short window of time—usually just a few days. Photocensus surveys are only possible when conditions align and drive caribou into large groups in windy or alpine areas to escape heat, swarms of insects, and predators. In 2022, ADF&G completed a photocensus of the herd and estimated the FCH at 38,000 caribou. The herd has experienced a notable decline since the last successful photocensus in 2018, when the herd peaked at an estimated 82,000 caribou.



Photocensus image of caribou on a snow field from 2022. Scan the QR code with a smartphone camera for a video about counting caribou in Alaska.

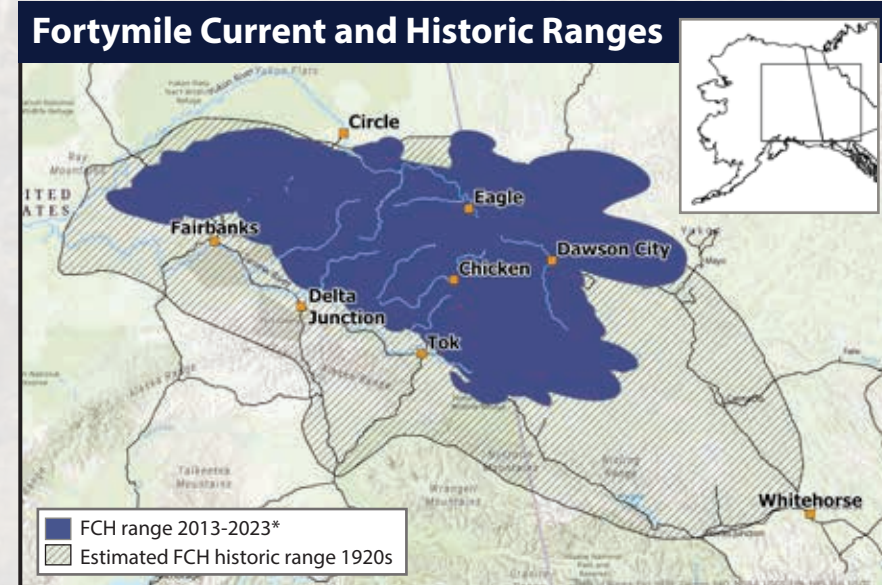


## FCH abundance and range size

A primary objective of FCH management has been to restore the herd to as much of the historic range as possible, without compromising the nutritional condition of caribou. The size of the FCH in the 1920s may have been as high as the low hundreds of thousands, while the peak of the herd in the 1950s and 1960s was closer to 50,000. With encouragement and support from the public and stakeholder groups, managers allowed the herd to grow as long as possible with the hope that a bigger herd would expand the range closer to the size it was in the 1920s. However, the recent FCH range expansion into new habitat did not reach the historic extent or improve the nutritional health of Fortymile caribou.

Several metrics show that some caribou likely began to experience nutritional stress around 2010, indicating that the herd was larger than what their range could support even then. A natural decline in abundance began around 2018, and managers intentionally reduced herd size through harvest in 2020 and 2021.

Birth rates of radio collared 3-year-old-cows and calf weights show that caribou are continuing to experience nutritional stress, despite the significant decrease in herd size over the past several years. The combination of low birth rates and poor calf survival indicates that there are currently not enough young adult caribou surviving in the population to replace older adults that die from hunting and natural causes. All of the available evidence shows that the Fortymile caribou herd is still in decline.

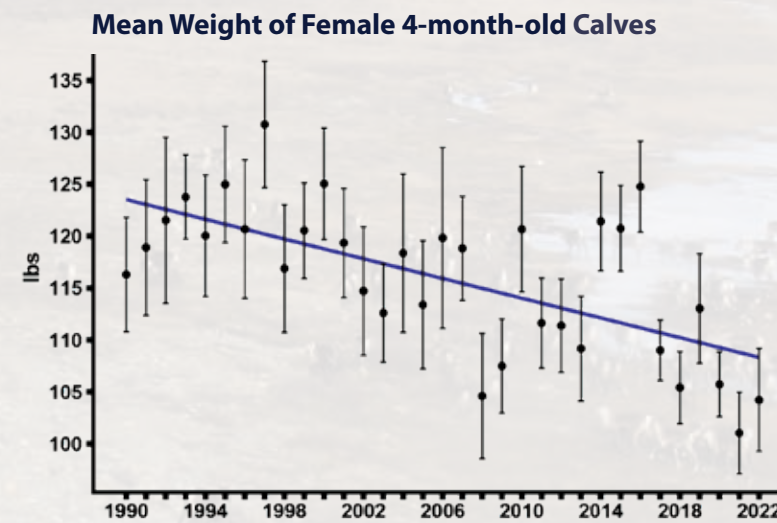


\*Polygon is the combination of all known locations for radio collared caribou since 2013

## Evidence of a nutritional decline

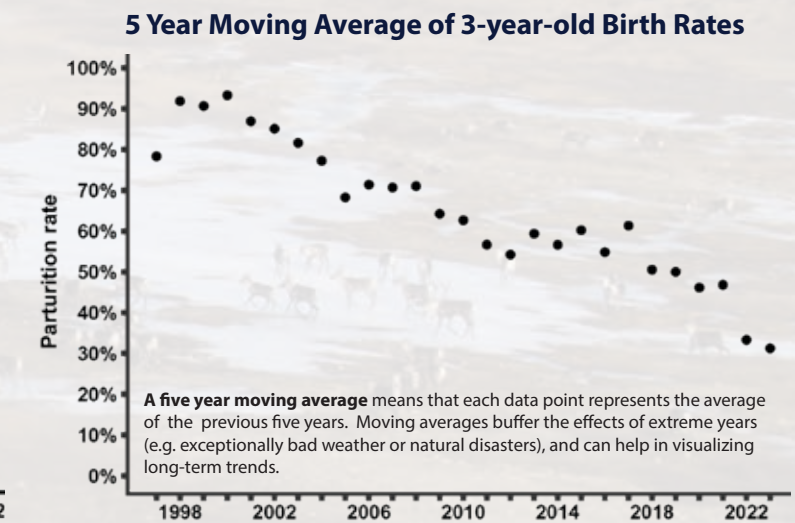
### 4-month-old calf weights

Calf weights in October have gradually decreased over the past several decades. Overall, the trend in 4-month-old calf weights has been an average loss of almost half a pound annually since the early 1990s. This is at least partly due to lower calf birth weights, but the decrease in calf weights also indicates the effects of the declining body condition of cows providing milk to calves. Cows need high quality foods to keep up with the energetic demands of producing milk, and calves need high quality forage to put on weight during their first summer. Calf weights are also linked to survival rates, as lighter calves are also less likely to survive.



### Birth rates of 3-year-old caribou cows

The rate of radio collared female caribou in the Fortymile herd that give birth at 3 years old has continued to decline. Cows typically give birth for the first time when they are 3 years old, but may not if they are in poor body condition due to lack of sufficient nutrition. Young caribou are generally the first to show signs of nutritional stress. 3-year-old birth rates have been especially low over the past decade, and currently, only around a third of collared 3-year-old females are giving birth annually.



### Calf survival

Calf survival rates have been below 50% since 2017, and closer to 25% since 2019. This means that there have been fewer young caribou that make it to adulthood to replace adults lost from the herd each year. In general, when there are not enough young born that survive to replace adults that die, wildlife populations stop growing and begin to decline.

### Adult reproduction and survival

The birth rate of cows that are 4-years-old and older has been more stable than the birth rate of 3-year-old cows over the period between 1994 and 2022. However, radio collared adult cows have experienced lower than average survival rates since 2018. Reduced survival rates (for cows and calves) are compounded by lower overall herd reproduction rates, which has resulted in a decline in the Fortymile caribou herd.

### Herd composition and the bull:cow ratio

Once a year biologists fly surveys to estimate caribou herd composition—the proportion of the total herd that are bulls, cows, and calves. The bull:cow ratio for the Fortymile herd has remained relatively high and stable at 35 bulls for every 100 cows in the herd, despite the recent decrease in herd size.



Wildlife technician Bob Gingue collaring a Fortymile caribou.