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# The Montana Expression 2017: Invasive Species and Water Recreation

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**TOURISM & RECREATION RESEARCH**  
UNIVERSITY OF MONTANA

# The Montana Expression 2017: Invasive Species and Water Recreation

MT Expression Research Report 2017-3

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**5/1/2017**



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## Introduction

On August 19, 2016 the Yellowstone River was closed to ALL recreation due to a parasite found in mountain Whitefish (see [http://fwp.mt.gov/news/newsReleases/closures/waterbodies/nr\\_0105.html](http://fwp.mt.gov/news/newsReleases/closures/waterbodies/nr_0105.html)). Thousands of Whitefish were found dead along the banks of the Yellowstone River. While the river was closed for 183 miles from Gardiner to just west of Laurel, the highest die-off occurred between Emigrant and Livingston, Montana. The immediate shut-down created nearly a \$500,000 economic loss to Park County, Montana and caused a shift of river recreation from the Yellowstone to the Madison, Missouri and other rivers around the state.

Then, on November 8, [FWP announced that larvae of aquatic invasive mussels](#) had been detected in water samples from the Tiber Reservoir north of Great Falls. Additional samples found potential larvae in Canyon Ferry Reservoir. For precautionary measures, Glacier National Park and the Blackfeet nation closed all waters to watercraft. These invasive mussels pose a threat to the ecology of Montana, including the world renowned trout fishing, as well as irrigation and municipal water systems.

Montanans love their waterways. These two events have caused Montana Fish, Wildlife and Parks to regulate more and differently than in the past. Temporarily closing waterways is one outcome of these events but more stringent monitoring and inspection of boats is now a part of daily life in Montana.

## Purpose

The purpose of this study was to assess how many Montanans participate in outdoor water recreation and to assess their awareness level of the 2016 water closures due to invasive species events.

## Methods

Data were collected by a dedicated group of trained surveyors who ask a few questions to Montanans as they filled up their vehicle with fuel at gas stations or who stopped at rest areas around the state. ITRR has permission from over 100 gas stations to talk to residents in the amount of time it takes them to fill their gas tank. During quarter 1, 2017, any Montanan who stopped at gas stations or rest areas had an opportunity to be surveyed about the invasive species events in Montana. The respondent data was weighted to represent the county of residence and gender from the census (2014) thus providing a representative sample reflecting the geographic population and gender of the state.

## Survey design

The survey was designed by ITRR personnel and loaded on iPads of the eleven surveyors located around the state. The survey was short by design (due to the amount of time available) with only six questions. See appendix A for survey questions.

# The Montana Expression 2017: Invasive Species and Water Recreation

2017

## Limitations

This study was limited to Montana residents 18 and older who either drive or are passengers in vehicles.

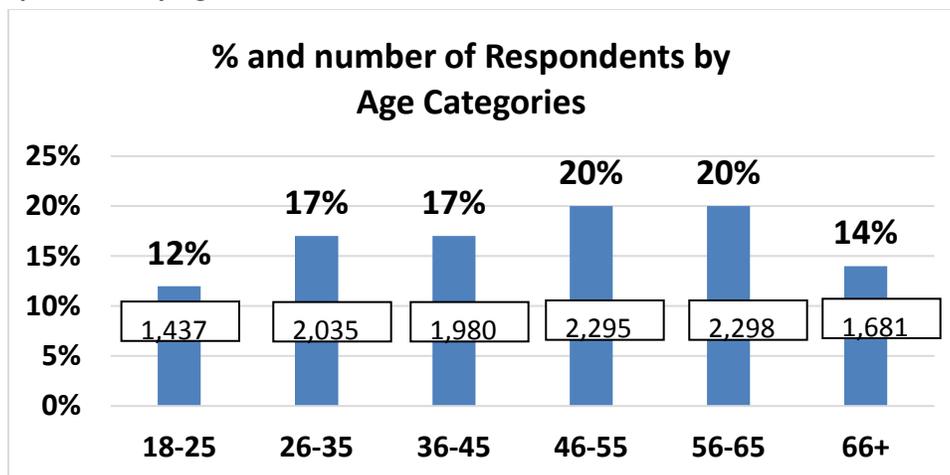
## Response rate

The response rate was 83% or 11,821 Montana residents responding to the survey during the months of January, February and March, 2017.

## Results: The Montana Expression 2017 Invasive Species Awareness

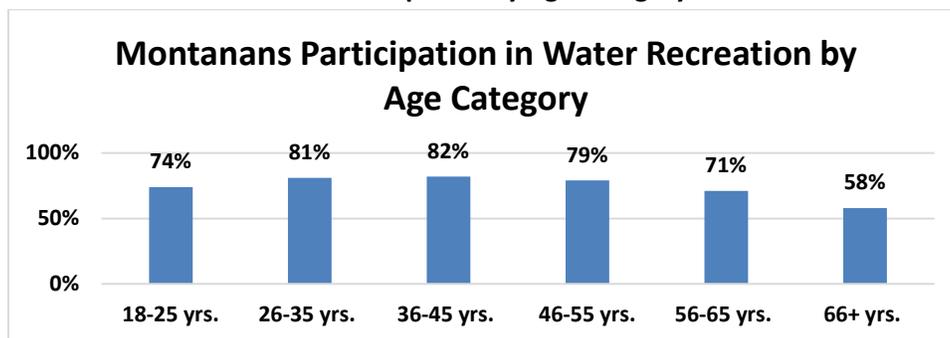
For this study the gender breakdown represents Montana's population of 50-50 male and females. Respondent ages ranged from 18-95 with an average age of 46.8 years. The number of respondents by age category is shown in Figure 1.

Figure 1: Respondents by Age



Respondents were asked if they participate in any outdoor water recreation activities. Nearly three-fourths (73%) said yes. Figure 2 shows that ages between 26 and 55 yrs. have the highest participation.

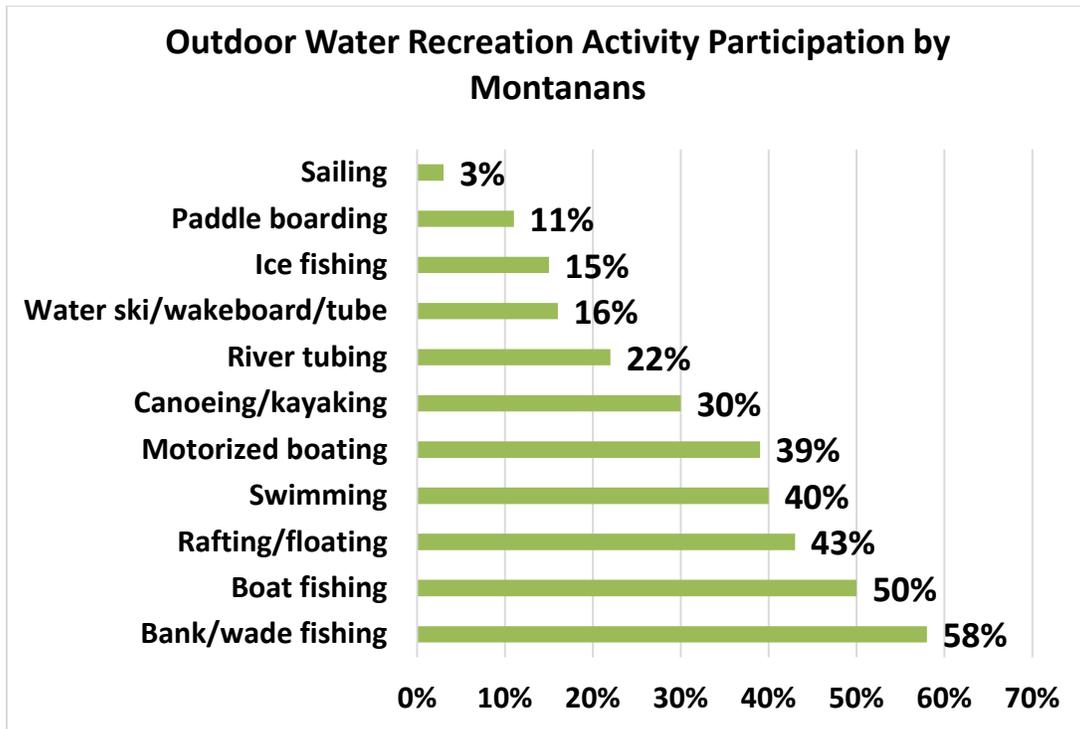
Figure 2: Percent of Water Recreation Participation by Age Category



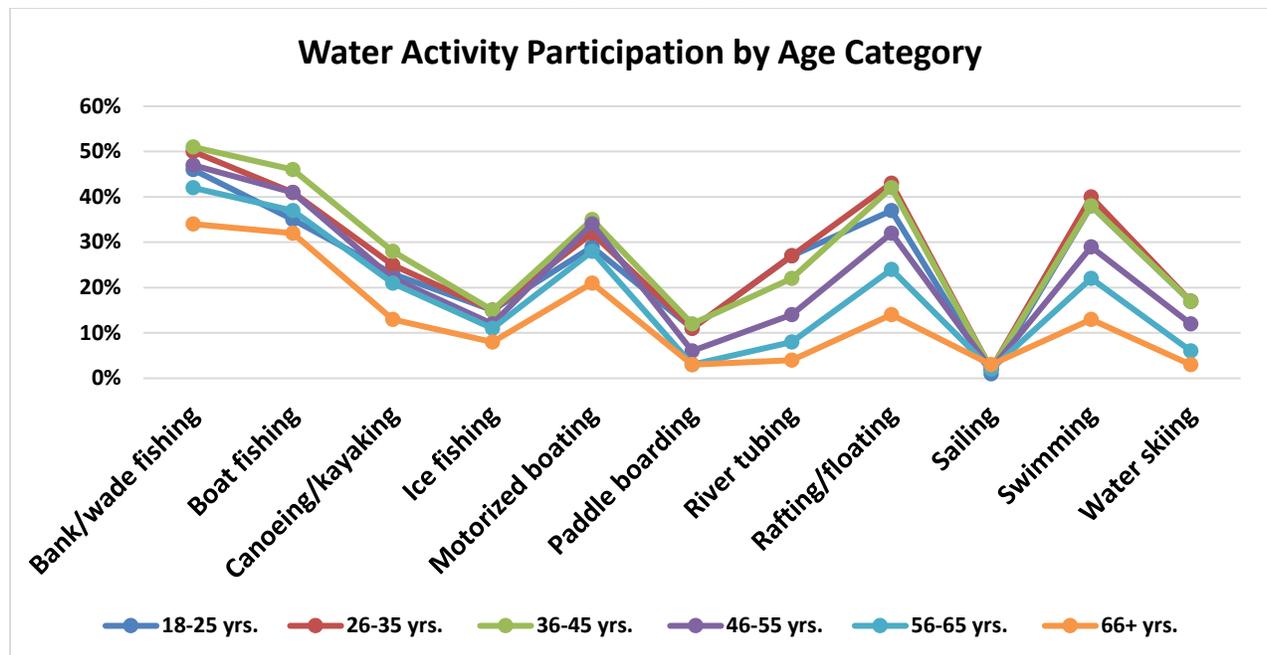
# The Montana Expression 2017: Invasive Species and Water Recreation 2017

The variety of outdoor water activities participated in by Montanans ranged widely with 58% saying bank/wade fishing to 3% who indicated sailing (Figure 3). Figure 4 shows participation by age category.

**Figure 3: Percent of all Montanans (18 yrs. +) who Participate in Outdoor Water Activities**



**Figure 4: Participation rate of Water Activity by Age Category**



# The Montana Expression 2017: Invasive Species and Water Recreation

2017

All respondents were read the following statements: “This past year Montana experienced a parasite in the Whitefish of the Yellowstone River causing a month-long closure. Then, an invasive species of mussels were found in some Montana waters causing closures in Glacier, on the Blackfoot Reservation, as well as both Tiber and Canyon Ferry Reservoirs. **Were you aware of either of these events?”**

Results showed that 21% of all Montanans had not heard of either event while 58% were aware of both events. If they were aware of just one event it was the mussel invasion (13%) followed by the the Whitefish parasite (8%).

Differences in awareness, however, were found by age categories highlighting a serious need to re-evaluate how invasive species issues are communicated to Montana residents. Table 1 shows that younger residents 18-25 years of age were significantly more likely to be unaware of either of the events that occurred in Montana while only 11% of those 56-65 years of age and 10% of those 66 and older were unaware. Overall, as ones age increased, the likeliness of hearing about the events increased drastically (Table 1).

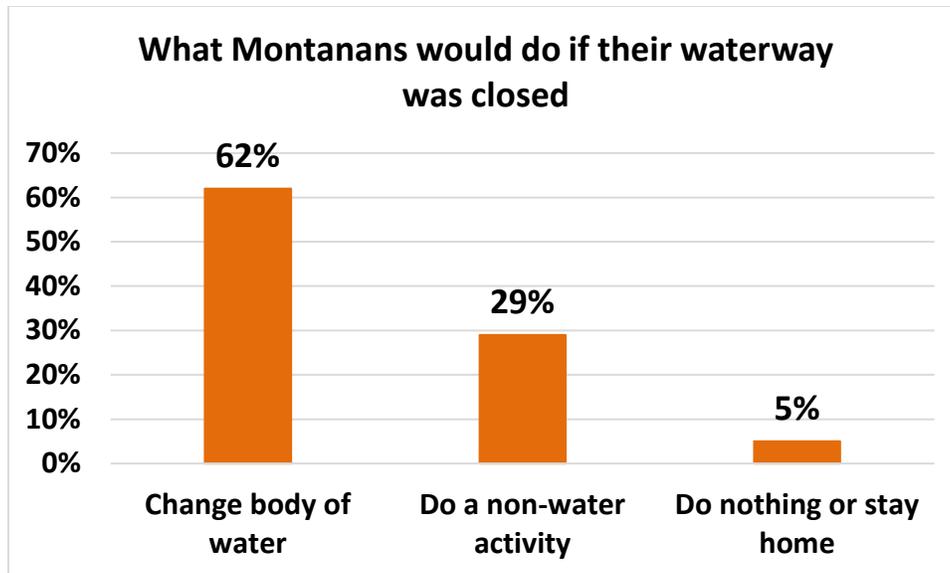
**Table 1: Awareness of Invasive Species Events by Respondent Age**

Aware	18-25 (n=1437)	26-35 (n=2030)	36-45 (n=1975)	46-55 (n=2295)	56-65 (n=2298)	>65 (1681)
Neither	47%	30%	18%	16%	11%	10%
Whitefish	10%	10%	8%	8%	7%	9%
Mussels	17%	13%	13%	12%	11%	12%
both	27%	47%	62%	64%	72%	70%

Montanans who participate in outdoor water recreation activities were asked if they had been impacted by any of the closures (Yellowstone River, Tiber and Canyon Ferry Reservoirs, Blackfoot Reservation waterways or Glacier National Park waterways). Only 9% of Montanans said they had been impacted. This may have been partially because only the Yellowstone River closure occurred in the summer. All the other waterways were closed in November when little water activity was happening.

Finally, those who do participate in water recreation were asked what they would do if future closures affected the waterways they use. The majority of Montanans would change locations/body of water (62%) while 29% would do a non-water activity instead. Only 5% would do nothing or just stay home (Figure 5). This indicates that pressure on waterways not impacted by closures would experience an increase which has the potential of creating a crowding situation elsewhere.

Figure 5: What Montana Residents would do if their Waterway was closed in the Future



## Conclusions

This study surveyed nearly 12,000 Montana residents and found that fishing, rafting, swimming and motorized boating are the water activities most participated in by Montanans. In regards to the mussel invasive aquatic species, motor boating is the most common way in which the mussels get transferred from one water body to the next. Twenty-nine percent of 18-25 year olds are motor boaters and 32% of Montanans 26-35 years of age are motor boaters but 47% of the younger group and 30% of the next age group were aware of neither the Whitefish Parasite nor the invasive mussels. This lack of awareness by younger Montanans should be a big concern for FWP who is responsible for the health of Montana waterways. To reach these age groups through the typical TV, radio and newspaper outlets is likely not working and therefore a diversification of communication and education methods is needed. This includes all forms of social media and perhaps looking to age related social leaders who are highly tied in to the various social outlets as the conduit for communication.

Awareness of the closure of waterways in 2016 was at its highest level the older one was. Without a full understanding and awareness by residents of why these closures happen, possible spread of the invasive aquatic species is more likely.

### Appendix A: Survey Questions

1. Do you participate in any outdoor water recreation activities? Yes No
  - a. If Yes, what type of outdoor water recreation do you typically participate in?
    - i. Bank/wade fishing
    - ii. Boat fishing
    - iii. Canoeing/kayaking
    - iv. Ice fishing
    - v. Motorized boating
    - vi. Paddle boarding
    - vii. River tubing
    - viii. Rafting/floating
    - ix. Sailing
    - x. Swimming
    - xi. Water skiing/wakeboarding/tubing
2. This past year Montana experienced a parasite in the Whitefish of the Yellowstone River causing a month-long closure. Then, an invasive species of mussels were found in some Montana waters causing closures in Glacier, on the Blackfeet reservation, as well as both Tiber and Canyon Ferry Reservoirs. **Were you aware of either of these events?**
  - a. Neither
  - b. Whitefish Parasite (Yellowstone River)
  - c. Mussels (invasive species)
  - d. Both
3. Was your recreation participation impacted by either closure? Yes No
4. In the event of future closures on waterways you use, would you be most likely to...
  - a. Change locations/body of water
  - b. Do a non-water activity
  - c. Do nothing/stay home
5. What is your age?
6. What Montana County do you permanently reside in?