

Supplemental Materials

Table S1. Characteristics of Grand Canyon National Park backpackers by symptom status, April-June 2022

	n (%)	
	Cases	Well persons
Total	31	453
Age, Yrs., Median, (IQR)	40 (30-52)	52 (39-63)
Gender		
Female	12 (39)	133 (29)
Male	19 (61)	310 (68)
Nonbinary	0 (—)	2 (<1)
Did Not Specify	0 (—)	8 (2)
Race		
White	29 (94)	413 (91)
Asian, NH/OPI, or Other	2 (6)	25 (6)
Did Not Specify	0 (—)	15 (3)
Ethnicity		
Hispanic or Latino	3 (10)	18 (4)
Not Hispanic or Latino	27 (87)	409 (90)
Did not specify	1 (3)	26 (6)
National Park User Type		
Guide/Park Employee	1 (3)	12 (3)
Park visitor	30 (97)	440 (97)
Trip Duration		
1 Night	2 (6)	53 (12)
2-3 Nights	8 (26)	188 (42)
4-6 Nights	18 (58)	163 (36)
≥7 Nights	3 (10)	48 (11)
Illness Characteristics		
Symptom Onset		
≤24 Hrs. Before Trip Began	3 (10)	
During Trip	16 (51)	
≤3 Days After Trip End	12 (39)	
Symptom Duration, Hrs., Median (IQR)	24 (12 - 72)	
Diarrhea	25 (81)	
Nausea	18 (58)	
Vomiting	17 (55)	
Fatigue	16 (52)	
Stomach Cramps	16 (52)	
Chills	13 (42)	
Muscle Aches	8 (26)	
Headache	8 (26)	
Fever	7 (23)	

NH/OPI, Native Hawaiian and other Pacific Islander.

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Table S2. Reported behaviors among Colorado River rafters by age group, Grand Canyon National Park April–June 2022

	Age Group*			p-value [†]
	18-39 years	40-59 years	60-82 years	
Hand Hygiene (Before Snacks)				
Soap and Water	62 (31)	91 (44)	121 (48)	
Sanitizer, Wipes, or Water	89 (45)	67 (33)	69 (27)	0.001
None	46 (23)	47 (23)	62 (25)	
Sharing Dishes				
Yes	151 (74)	116 (55)	103 (38)	
No	52 (26)	95 (45)	170 (62)	<0.001
Contact with Other Groups				
Yes	136 (70)	132 (64)	123 (46)	
No	57 (30)	75 (36)	145 (54)	<0.001
Contact with Ill Persons				
Yes	59 (31)	66 (32)	92 (34)	
No	134 (69)	141 (68)	176 (66)	0.68
Swimming				
Yes	172 (86)	163 (78)	208 (77)	
No	28 (14)	46 (22)	61 (23)	0.044
Swallowing Untreated Water				
Yes	45 (23)	32 (15)	30 (11)	
No	155 (77)	177 (85)	240 (89)	0.004
Rafter Type				
Guide	22 (10)	15 (6)	1 (<1)	
Passenger	206 (90)	217 (94)	293 (>99)	<0.001
Trip Type				
Commercial	62 (27)	78 (34)	145 (49)	
Private	166 (73)	154 (66)	149 (51)	<0.001

*Not all passengers reported their age.

[†]Chi-Square.

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Table S3. Hazard ratio estimates from a Cox proportional hazards model comparing rates of acute gastroenteritis among Colorado River rafters (excluding age group), Grand Canyon National Park April-May 2022

Predictor	Unadjusted HR	Adjusted HR (Model)	p-value
Contact with Known Ill Persons	4.30 (2.96 – 6.24)	3.46 (2.36 – 5.07)	<0.001
Handwashing (Before Snacks) [*]			
Inadequate Hand Hygiene [†]	0.78 (0.52 – 1.18)	1.86 (1.18 – 2.91)	0.007
No Hand Hygiene	0.69 (0.43 – 1.13)	1.23 (0.75 – 2.02)	0.407
Shared Dishes or Utensils	0.75 (0.52 – 1.07)	1.51 (1.01 – 2.24)	0.042
May Trip Launch Month [§]	10.82 (1.21 – 52.96)	2.19 (0.33 – 14.44)	0.416
Private Rafter [¶]	0.12 (0.08 – 0.17)	0.13 (0.08 – 0.20)	<0.001

HR, hazard ratio.

^{*}Reference group is using soap and water for handwashing.

[†]Alcohol-based hand sanitizer only, wipes, or only water.

[§]April was used as the reference group of trip launch month as commercial operating season began April 1, 2022.

[¶]Reference group was commercial rafters.

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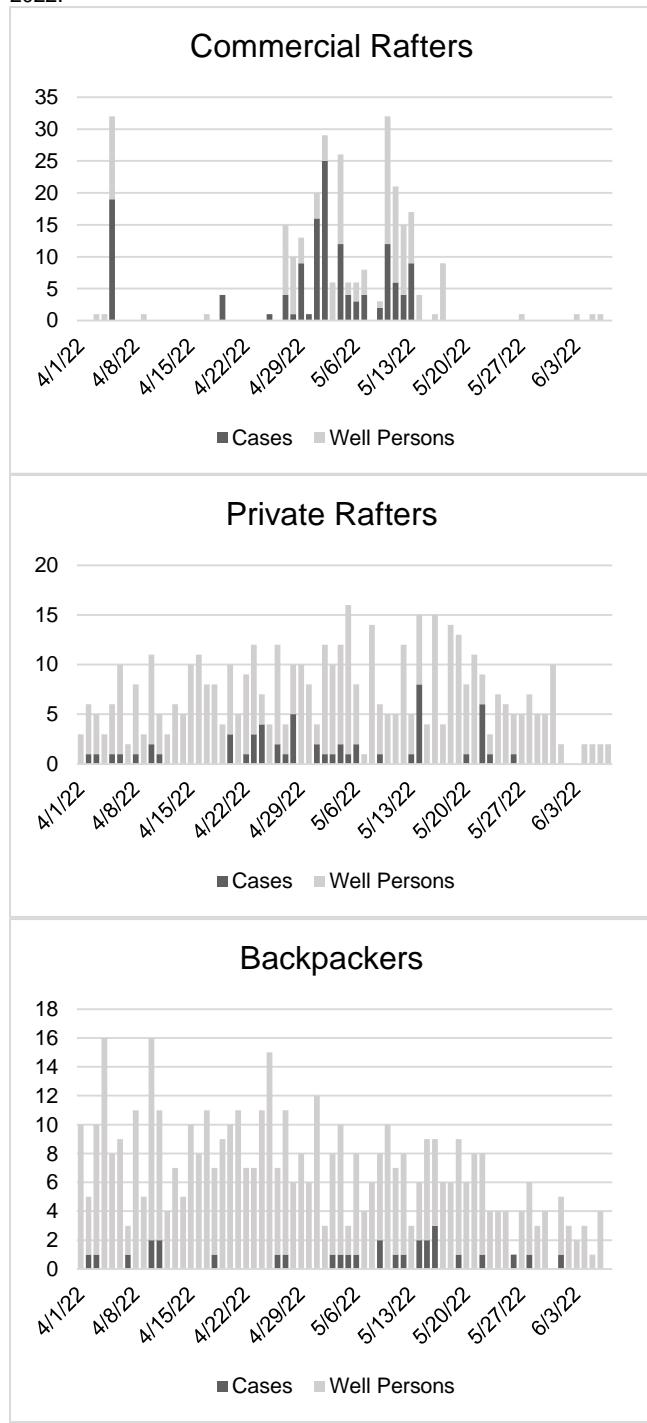
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Figure S1. Map of the Colorado River rafting route from launch point (Lees Ferry) to disembarkation point (Pearce Ferry), Grand Canyon National Park April–June 2022.



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Data source(s): Bureau of Land Management, Arizona, USGS, EPA, NPS, Esri, CGIAR, HERE, Garmin, FAO, NOAA

474
475**Figure S2.** Distribution of survey participants by trip type, trip start date, and case status, Grand Canyon National Park April–June 2022.

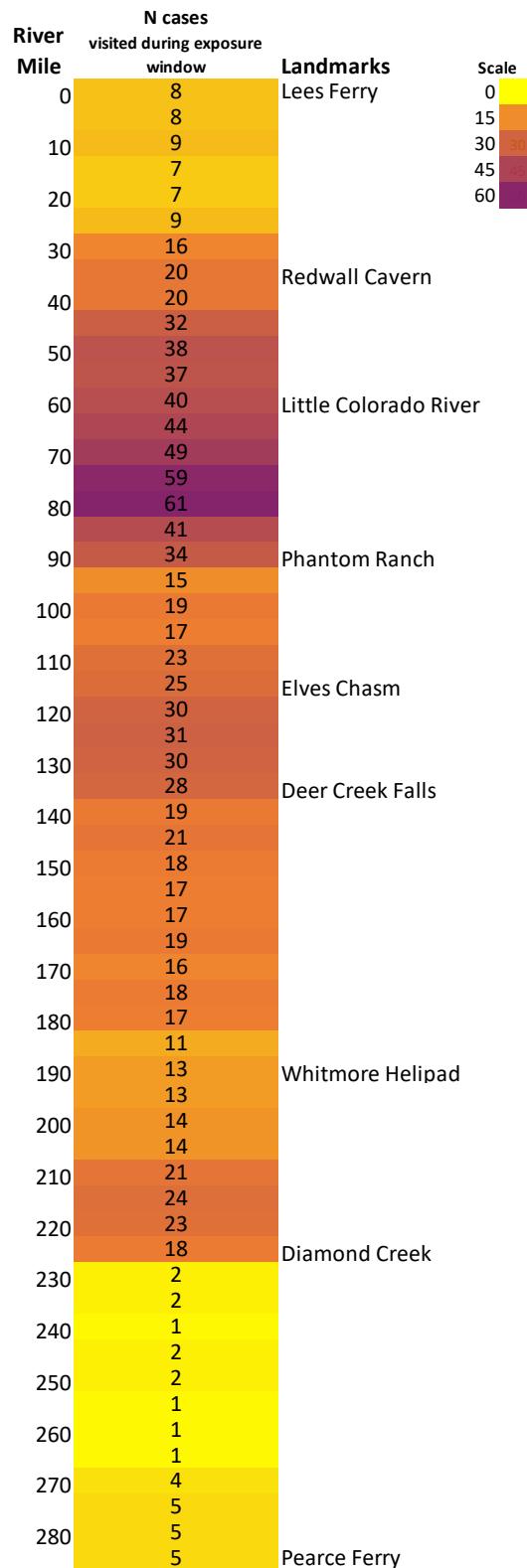
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Figure S3. Distribution of potential case exposure locations among Colorado River rafters, where exposure window is defined as two days prior to symptom onset, Grand Canyon National Park April–June 2022.



483

484 **Supplemental Methods: Survey**485 The following survey includes branch and skip logic, therefore some of the questions may appear
486 out of numerical order.

487

488 **GRCA River User and Backcountry Visitor Survey**489 Q1 This is a survey from Coconino County Health and Human Services, the National Park
490 Service, and Centers for Disease Control and Prevention. The survey takes only 10 minutes or
491 less.

492

493 As you may know, there have been reports of gastrointestinal illnesses among river users and
494 backcountry campers in Grand Canyon National Park. We are working to determine what might
495 have caused the outbreak to prevent future outbreaks. Your input is important, even if you DID
496 NOT get sick. When we compare ill people to people who weren't ill - this helps us narrow the
497 possibilities of what caused the illnesses and support people enjoying the parks and staying
498 healthy. The information you share in this survey will be kept private and stored securely.

499

500 THANK YOU for your participation and support in our investigation.

501

502 Q2 Do you agree to complete this survey?

503 Yes (1)504 No (2)

505 Q3 First and Last Name

507

508 Q4 Phone number (if non-US number, please enter at end of survey in final comments).

509

510 Q5 Preferred email

511

512 Q6 City, State you reside in:

513

514 Q7 Age at time of trip start, when you began your activity enter Grand Canyon National Park (in
515 years):

516

517 *Display This Question: If Age at time of trip start, when you began your activity enter Grand
518 Canyon National Park (in years): Text Response is Less Than 18*

519

520 Q8 First and Last name of Parent or Guardian (you were less than 18 years old at the start of the
521 trip)

522

523 Q9 What day did your trip start? Please enter as mm/dd/yyyy

524

525 Q10 What day did your trip end? Please enter as mm/dd/yyyy

526 Q11 What is your race? Select all that apply.

527 White or Caucasian (1)

528 Black or African American (2)

529 Asian, Pacific Islander, or Native Hawaiian (3)

530 Native American, American Indian, or Alaska Native (4)

531 Other (specify) (5)

532

533 Q12 What is your ethnicity?

534 Hispanic or Latino (1)

535 Not Hispanic or Latino (2)

536

537 Q13 What is your gender?

538 Male (1)

539 Female (2)

540 Non-binary / third gender (3)

541 Other (specify) (4)

542

543 Q14 Are you a:

544 Park visitor (including rafters, hikers) (1)

545 Concession employee, contractors, partners (e.g. outfitters, guides) (2)

546 Park employee or park volunteer (3)

547 Other (specify) (4)

548

549 *Display This Question: If Are you a: = Concession employee, contractors, partners (e.g. outfitters, guides)*

550

551
552 Q15 You have indicated that you are a \${Q14/ChoiceDescription/2}. What is the name of the
553 company you work for?

554

555 Q16 Did any friends or family come with you on this trip?

556

Yes (1)

557

No (2)

558

559 *Display This Question: If Did any friends or family come with you on this trip? = Yes*

560

561 Q17 You have indicated that friends or family came with you on this trip. How many people
562 total were in your party, including yourself?

563

564 Q110 Did you experience vomiting or diarrhea (3 or more loose stools in 24 hours):

565

In the 24 hours before the trip began (1)

566

During the trip (2)

567

In the 7 days following the trip end (4)

568

I did not experience vomiting or diarrhea during any of these time frames. (5)

569

570 Q113 All questions referring to your trip are asking about your rafting, hiking, or backcountry
571 camping trip into the Grand Canyon on trails or on the river, specifically.

572

573 Q25 What type of activity did you participate in?

574

Hiking or backpacking (1)

575

Private rafting trip (2)

576

Commercial rafting trip (e.g. a company led and outfitted the whole trip) (3)

577

Park-sponsored/work-related trip (4)

578

Other (specify) (5)

579

580 *Display This Question: If What type of activity did you participate in? = Commercial rafting trip*
581 *(e.g. a company led and outfitted the whole trip)*

582

583 Q115 What is the name of the company you rafted with?

584

585 Q31 How did you arrive to the start of this trip/activity?

586 Bus or van (1)

587 Private vehicle (2)

588 Helicopter or plane (3)

589 Other (specify) (4)

590

591 *Display This Question: If How did you arrive to the start of this trip/activity? = Bus or van*

592 *Or How did you arrive to the start of this trip/activity? = Helicopter or plane*

593

594 Q32 Please list the name of the company you used for transportation.

595

596 Q33 How did you depart from the end of this trip/activity?

597 Bus or van (1)

598 Private vehicle (2)

599 Helicopter or plane (3)

600 Other (4)

601 Medical evacuation (5)

602

603 *Display This Question: If How did you depart from the end of this trip/activity? = Bus or van*

604 *Or How did you depart from the end of this trip/activity? = Helicopter or plane*

605

606 Q34 Please list the name of the company you used for transportation.

607

608 *Display This Question: If How did you depart from the end of this trip/activity? = Medical*

609 *evacuation*

610

611 Q112 What date were you medically evacuated? Please put in as mm/dd/yyyy.

612

613 *Display This Question: If How did you depart from the end of this trip/activity? = Medical*

614 *evacuation*

615

616 Q101 Please describe your medical evacuation including date and reason for evacuation.

617

618 *Display This Question: If How did you depart from the end of this trip/activity? = Medical*

619 *evacuation*

620

621 Q102 Please list the name of the hospital or medical provider you visited after medical
622 evacuation.

623

624 Q46 Did you buy any food at the stops along your trip in the Grand Canyon, from starting point
625 to end?

626 Yes (1)

627 No (2)

628

629 *Display This Question: If Did you buy any food at the stops along your trip in the Grand*
630 *Canyon, from starting point to end? = Yes*

631

632 Q46 You indicated that you bought food at a stop along your trip. Where did you buy food?
633 Please describe the stop and the vendor.

634

635 *Display This Question: If Did you buy any food at the stops along your trip in the Grand*
636 *Canyon, from starting point to end? = Yes*

637

638 Q47 Please describe what you purchased.

639

640 Q48 Did you fill your water container(s) at the start of your trip?

641 Yes (1)

642 No (2)

643

644 *Display This Question: If Did you fill your water container(s) at the start of your trip? = Yes*

645

646 Q49 Where did you fill your water container(s) at the start of the trip?

647

648 Q50 Did you refill your water container(s) at any stop (outside of your boat's drinking water, if
649 rafting)?

650 Yes (1)

651 No (2)

652

653 *Display This Question: If Did you refill your water container(s) at any stop (outside of your*
654 *boat's drinking water, if raf... = Yes*

655

656 Q51 Where did you refill your water container(s)?

657 Spigot (e.g., boat beach water hydrant or hydrant at Lees Ferry) (1)

658 River (2)

659 Side creek, spring, waterfall (3)

660 Other (specify) (4)

661

662 *Display This Question: If Did you refill your water container(s) at any stop (outside of your*
663 boat's drinking water, if raf... = Yes

664

665 Q52 How did you process your water? Please select all that apply.

666 Filter (1)

667 Chlorinate, bleach, or iodine (2)

668 UV light (3)

669 Boiling (4)

670 Other (specify) (5)

671 None (6)

672

673 *Display This Question: If How did you process your water? Please select all that apply. = Filter*

674

675 Q53 Please describe the filter you used.

676

677 *Display This Question: If How did you process your water? Please select all that apply. =*
678 Chlorinate, bleach, or iodine

679

680 Q54 Please describe the chlorine, bleach, or iodine treatment you used.

681

682 *Display This Question: If How did you process your water? Please select all that apply. = UV*
683 light

684

685 Q55 Please describe the UV light treatment you used.

686

687 *Display This Question: If How did you process your water? Please select all that apply. =*
688 Boiling

689

690 Q56 Please describe the boiling procedure you used.

691

692 Q57 Did you drink water from Lees Ferry (water not filtered on the boat, if rafting)?

693 Yes (1)

694 No (2)

695 I did not visit Lees Ferry (3)

696

697 *Display This Question: If Did you drink water from Lees Ferry (water not filtered on the boat, if rafting)? = Yes*

699

700 Q104 Where did you drink water from at Lees Ferry?

701 Spigot (e.g., boat beach water hydrant or hydrant at Lees Ferry) (1)

702 River (2)

703 Water fountain (3)

704 Other (specify) (4)

705

706 Q58 Did you drink water from Phantom Ranch/Pipe Creek (water not filtered on the boat, if rafting) such spigots at the campground, boat beach, etc?

708 Yes (1)

709 No (2)

710 I did not visit Phantom Ranch (Pipe Creek) (3)

711

712 *Display This Question: If Did you drink water from Phantom Ranch/Pipe Creek (water not filtered on the boat, if rafting) su... = Yes*

714

715 Q105 Where did you drink water from at Phantom Ranch?

716 Spigot (1)

717 River (2)

718 Water fountain (3)

719 Other (specify) (4)

720

721 Q59 Did you use a toilet during your trip? (Does not include the groover or toilet supplied for rafting trips)

722

723 Yes (1)

724 No (2)

725

726 *Display This Question: If Did you use a toilet during your trip? (Does not include the groover or*
727 toilet supplied for rafti... = Yes

728

729 Q60 Where did you use a toilet? Please select all that apply.

730 Phantom Ranch camping ground (1)

731 Southern Rim facilities (2)

732 Bright Angel Trail toilets (3)

733 Composting/vault toilet in back country (4)

734 Other (specify) (5)

735

736 *Display This Question: If Where did you use a toilet? Please select all that apply. = Southern*
737 Rim facilities

738

739 Q61 Please describe the location of the toilet you used at the Southern Rim facilities

740

741 *Display This Question: If Where did you use a toilet? Please select all that apply. = Bright Angel*
742 Trail toilets

743

744 Q62 Please describe the location of the toilet you used on Bright Angel Trail

745

746 *Display This Question: If Where did you use a toilet? Please select all that apply. =*
747 Composting/vault toilet in back country

748

749 Q63 Please describe the location of the composting/vault toilet in back country you used.

750

751 Q64 Did you share your drinking water bottle/cup with anyone else during your trip (including
752 with a friend or family member)?

753 Yes (1)

754 No (2)

755 Q67 Did you share your utensils/plates with or prepare a plate of food for someone else during
756 your trip (such as with a friend or family member)?

757 Yes (1)

758 No (2)

759

760 Q68 Did you participate in preparing meals?

761 Yes (1)

762 No (2)

763

764 Q69 Did you participate in doing dishes?

765 Yes (1)

766 No (2)

767

768 Q71 Did you brush your teeth with water?

769 Yes (1)

770 No (2)

771

772 *Display This Question: If Did you brush your teeth with water? = Yes*

773

774 Q72 What water did you use to brush your teeth?

775 River water (1)

776 Bottled water (2)

777 Spigot water (3)

778 Treated water (4)

779

780 Q74 Think back to the following meals and please respond with how you cleaned your hands a
781 majority of the time.

782

783 Q73 Breakfast

784 Soap and water only (1)

785 Hand sanitizer only (2)

786 Soap and water, followed with hand sanitizer (3)

787 Hand wipes (4)

788 Rinse with river water (5)

789 Other (specify) (6)

790 Did not wash hands (7)

791 Did not eat this meal (8)

792

793 Q75 Lunch

794 Soap and water only (1)

795 Hand sanitizer only (2)

796 Soap and water, followed with hand sanitizer (3)

797 Hand wipes (4)

798 Rinse with river water (5)

799 Other (specify) (6)

800 Did not wash hands (7)

801 Did not eat this meal (8)

802

803 Q76 Dinner

804 Soap and water only (1)

805 Hand sanitizer only (2)

806 Soap and water, followed with hand sanitizer (3)

807 Hand wipes (4)

808 Rinse with river water (5)

809 Other (specify) (6)

810 Did not wash hands (7)

811 Did not eat this meal (8)

812

813 Q77 Snacks

814 Soap and water only (1)

815 Hand sanitizer only (2)

816 Soap and water, followed with hand sanitizer (3)

817 Hand wipes (4)

818 Rinse with river water (5)

819 Other (specify) (6)

820 Did not wash hands (7)

821 Did not eat this meal (8)

822

823 Q82 Please describe your hand hygiene techniques when in the back country (hiking, visiting waterfalls) excluding meal times? (Please select what you did a majority of the time)

825 Soap and water only (1)

826 Hand sanitizer only (2)

827 Soap and water, followed with hand sanitizer (3)

828 Hand wipes (4)

829 Rinse with river water (5)

830 Other (specify) (6)

831 Q83 Please describe your hand hygiene techniques when using backcountry toilet (e.g. composting toilet or vault) that does not have running water? (Please select what you did a majority of the time)

832

833

834 Soap and water only (1)

835 Hand sanitizer only (2)

836 Soap and water, followed with hand sanitizer (3)

837 Hand wipes (4)

838 Rinse with river water (5)

839 Other (specify) (6)

840
841 Q78 Did you interact with any animals or animal feces while on the trip (e.g., while trying to
842 remove feces from shoes or camping gear?)

843 Yes (1)

844 No (2)

845
846 *Display This Question: If Did you interact with any animals or animal feces while on the trip
(e.g., while trying to remove... = Yes*

847
848 Q79 You indicated direct contact with an animal or animal feces, please describe.

849
850 Q92 These questions are for hikers and backcountry campers only.

851
852 Q41 Where did your trip begin?

853
854 Q42 Where did your trip end?

855
856 Q43 Please describe your backcountry camping or hiking route.

857
858 *Display This Question: If Loop all: Do you have additional overnight locations to report for
859 your backcountry camping trip? != No*

860
861 Q94 Please answer the following questions regarding where you camped each night. These
862 questions will be repeated as needed.

863
864 *Display This Question: If Loop all: Do you have additional overnight locations to report for
865 your backcountry camping trip? != No*

866
867 Q96 Describe the name of the campground or location of backcountry site where you camped
868 overnight.

869
870

871 *Display This Question: If Loop all: Do you have additional overnight locations to report for*
872 *your backcountry camping trip? != No*

873
874 Q95 What is the date range that you stayed at this stop? Please report as mm/dd/yyyy-
875 mm/dd/yyyy

876
877 *Display This Question: If Loop all: Do you have additional overnight locations to report for*
878 *your backcountry camping trip? != No*

879
880 Q97 Do you have additional overnight locations to report for your backcountry camping trip?

881 Yes (1)

882 No (2)

883
884 *Display This Question: If Loop all: Do you have additional party members to report? != No*

885
886 Q89 You have indicated that you were hiking or backcountry camping. Please list the contact
887 information for any additional hikers or backcountry campers below for public health outreach.
888 You may leave it blank if you traveled solo.

889
890 *Display This Question: If Loop all: Do you have additional party members to report? != No*

891
892 Q90 First and Last Name

893
894 *Display This Question: If Loop all: Do you have additional party members to report? != No*

895
896 Q91 Phone Number

897
898 *Display This Question: If Loop all: Do you have additional party members to report? != No*

899
900 Q92 Email Address
901
902 *Display This Question: If Loop all: Do you have additional party members to report? != No*

903
904 Q103 Do you have additional party members to report?

905 Yes (1)

906 No (2)

907

908

909 Q111 We are now going to ask you more detailed questions about if you were ill or not. Thank
910 you in advance if this is a repeat for any forms your completed related to your illness.

911

912 Q18 Did you feel ill:

913 In the 24 hours before the trip began (1)

914 During the trip (2)

915 In the 7 days following the trip end (4)

916 I did not feel ill in any of these time frames. (5)

917

918 *Display This Question: If Did you feel ill: = In the 24 hours before the trip began; Or Did you*
919 feel ill: = During the trip; Or Did you feel ill: = In the 7 days following the trip end

920

921 Q19 Please select all symptoms you experienced when ill.

922 Vomiting (1)

923 Diarrhea (3 or more loose stools in 24 hours) (2)

924 Blood in stool (3)

925 Nausea (4)

926 Stomach cramps (5)

927 Difficulty swallowing (6)

928 Fever (7)

929 Jaundice (yellow skin or eyes) (8)

930 Sweat or chills (9)

931 Fatigue (10)

932 Muscle aches (11)

933 Headache (12)

934 Sore throat (13)

935 Difficulty breathing (14)

936 Paralysis (15)

937 Difficulty speaking (16)

938 Hives (17)

939 Metallic taste (18)

940 Numbness or tingling (19)

941 Blurred vision (20)

942 Constipation (21)

943 Burning in mouth (22)

944 General weakness (23)

945 Other (specify) (24)

946
947 *Display This Question: If Did you feel ill: = In the 24 hours before the trip began; Or Did you*
948 *feel ill: = During the trip; Or Did you feel ill: = In the 7 days following the trip end*

949
950 Q20 When did your first symptom start? Please list as mm/dd/yyyy

951
952 *Display This Question: If Did you feel ill: = In the 24 hours before the trip began; Or Did you*
953 *feel ill: = During the trip; Or Did you feel ill: = In the 7 days following the trip end*

954
955 Q24 Where were you located on your trip when your symptoms began? (e.g., hotel, mile 110,
956 Phantom Ranch, Bright Angel Trail, etc)

957
958 *Display This Question: If Did you feel ill: = In the 24 hours before the trip began; Or Did you*
959 *feel ill: = During the trip; Or Did you feel ill: = In the 7 days following the trip end*

960 Q21 What was your first symptom?

961 Vomiting (1)

962 Diarrhea (3 or more loose stools in 24 hours) (2)

963 Blood in stool (3)

964 Nausea (4)

- 965 Stomach cramps (5)
- 966 Difficulty swallowing (6)
- 967 Fever (7)
- 968 Jaundice (yellow skin or eyes) (8)
- 969 Sweat or chills (9)
- 970 Fatigue (10)
- 971 Muscle aches (11)
- 972 Headache (12)
- 973 Sore throat (13)
- 974 Difficulty breathing (14)
- 975 Paralysis (15)
- 976 Difficulty speaking (16)
- 977 Hives (17)
- 978 Metallic taste (18)
- 979 Numbness or tingling (19)
- 980 Blurred vision (20)
- 981 Constipation (21)
- 982 Burning in mouth (22)
- 983 General weakness (23)
- 984
- 985 *Display This Question: If Please select all symptoms you experienced when ill. = Vomiting; Or*
- 986 *Please select all symptoms you experienced when ill. = Diarrhea (3 or more loose stools in 24*
- 987 *hours)*
- 988

989 Q99 If you experienced vomiting or diarrhea (3 or more loose stools in 24 hours), what date did
990 that begin? Please enter as mm/dd/yyyy

991
992 *Display This Question: If Did you feel ill: = In the 24 hours before the trip began; Or Did you*
993 *feel ill: = During the trip; Or Did you feel ill: = In the 7 days following the trip end*

994
995 Q22 How long did your symptoms last? Please answer in hours.

996
997 *Display This Question: If Did you feel ill: = In the 24 hours before the trip began; Or Did you*
998 *feel ill: = During the trip; Or Did you feel ill: = In the 7 days following the trip end*

999
1000 Q23 When did your symptoms end? Please list as mm/dd/yyyy

1001
1002 *Display This Question: If Did you feel ill: = In the 24 hours before the trip began; And Did you*
1003 *feel ill: = During the trip; And Did you feel ill: = In the 7 days following the trip end*

1004
1005 Q100 Did you seek medical care for your illness?

1006 Yes (1)

1007 No (2)

1008
1009 *Display This Question: If Did you seek medical care for your illness? = Yes*

1010
1011 Q108 Please list the name of the healthcare provider (e.g., hospital, medical office, or clinician)
1012 where you sought medical care. Please supply address and phone number, if available.

1013
1014 Q87 Are you willing to be contacted by public health for additional follow up?

1015 Yes (1)

1016 No (2)

1017
1018 *Display This Question: If Are you willing to be contacted by public health for additional follow*
1019 *up? = Yes*

1020
1021 Q103 Please list your best contact information for follow up.

1022
1023 *Display This Question: If Did you experience vomiting or diarrhea (3 or more loose stools in 24*
1024 *hours): = During the trip; Or Did you experience vomiting or diarrhea (3 or more loose stools*
1025 *in 24 hours): = In the 7 days following the trip end*

1026
1027 Q114 If your trip ended within the last 7 days, are you willing to submit a stool specimen to
1028 public health for testing?

1029 Yes (1)

1030 No (2)

1031 N/A (my trip ended further in the past or I was not ill) (3)

1032

1033 Q88 Please share any comments (any additional information you would like to share about your
1034 illness or trip).

1035

1036 Q104 Thank you for your participation in this interview or survey. If you have any additional
1037 questions, please contact publichealthprogram@nps.gov.

1038

1039 *Display This Question: If What type of activity did you participate in? = Commercial rafting trip
1040 (e.g. a company led and outfitted the whole trip)*

1041

1042 Q26 What is the name of the company you used to participate in the commercial rafting trip:

1043

1044 *Display This Question: If What type of activity did you participate in? = Commercial rafting trip
1045 (e.g. a company led and outfitted the whole trip)*

1046

1047 Q27 What type of commercial rafting trip did you participate in?

1048 Row (1)

1049 Motor (2)

1050

1051 *Display This Question: If What type of activity did you participate in? = Commercial rafting trip
1052 (e.g. a company led and outfitted the whole trip)*

1053

1054 Q28 Did you join or leave the commercial rafting trip via an exchange?

1055 Yes (1)

1056 No (2)

1057

1058 *Display This Question: If Did you join or leave the commercial rafting trip via an exchange? =
1059 Yes*

1060

1061 Q29 If you did join or leave a trip via an exchange, please list the location of your exchange.

1062

1063 *Display This Question: If Did you join or leave the commercial rafting trip via an exchange? =
1064 Yes*

1065

1066 Q30 What date did you exchange? Please list as mm/dd/yyyy

1067

1068 *Display This Question: If What type of activity did you participate in? = Private rafting trip; Or
1069 What type of activity did you participate in? = Commercial rafting trip (e.g. a company led and*

1070 *outfitted the whole trip); Or What type of activity did you participate in? = Park-*
1071 *sponsored/work-related trip*

1072

1073 Q35 Where did your rafting trip begin?

1074 Lees Ferry (1)

1075 Phantom Ranch (Pipe Creek) (2)

1076 Diamond Creek (3)

1077 Whitemore helipad (4)

1078 Other (specify) (5)

1079

1080 *Display This Question: If What type of activity did you participate in? = Private rafting trip; Or*
1081 *What type of activity did you participate in? = Commercial rafting trip (e.g. a company led and*
1082 *outfitted the whole trip); Or What type of activity did you participate in? = Park-*
1083 *sponsored/work-related trip*

1084

1085 Q36 Where did your rafting trip end?

1086 Pearce Ferry (1)

1087 Phantom Ranch (Pipe Creek) (2)

1088 Diamond Creek (3)

1089 Whitemore helipad (4)

1090 Other (specify) (5)

1091

1092 *Display This Question: If What type of activity did you participate in? = Private rafting trip; Or*
1093 *What type of activity did you participate in? = Commercial rafting trip (e.g. a company led and*
1094 *outfitted the whole trip); Or What type of activity did you participate in? = Park-*
1095 *sponsored/work-related trip*

1096

1097 Q37 Did you have any interactions with persons who were not members of your rafting trip?

1098 Yes (1)

1099 No (2)

1100

1101 *Display This Question: If Did you have any interactions with persons who were not members of*
1102 *your rafting trip? = Yes*

1103

1104 Q38 If yes, please describe the interaction:

1105

1106 *Display This Question: If What type of activity did you participate in? = Private rafting trip; Or*
1107 *What type of activity did you participate in? = Commercial rafting trip (e.g. a company led and*
1108 *outfitted the whole trip); Or What type of activity did you participate in? = Park-*
1109 *sponsored/work-related trip*

1110

1111 Q39 Did you have any interactions with ill, suspected ill, or symptomatic persons during your
1112 trip?

1113 Yes (1)

1114 No (2)

1115

1116 *Display This Question: If Did you have any interactions with ill, suspected ill, or symptomatic*
1117 *persons during your trip? = Yes*

1118

1119 Q40 If yes, please describe the interaction with an ill person:

1120

1121 Q80 Did you swim or submerge your head in water at camp?

1122 Yes (1)

1123 No (2)

1124

1125 *Display This Question: If Did you swim or submerge your head in water at camp? = Yes*

1126

1127 Q84 Please describe these experiences, particularly if you saw another group, observed potential
1128 dirty water, or other significant memories. List where, when, and multiple dates/locations if
1129 needed.

1130

1131 Q85 Did you swallow untreated river water or any of the water at the recreational (e.g.,
1132 swimming, waterfall tour) or camping stops?

1133 Yes (1)

1134 No (2)

1135

1136 *Display This Question: If Did you swallow untreated river water or any of the water at the*
1137 *recreational (e.g., swimming, wa... = Yes*

1138

1139 Q86 Please describe where and when. List multiple dates (mm/dd/yyyy) and location if needed.

