Citizen Science Quality Assurance Project Plan (QAPP)
Title and Signature Page

Eastern Long Island Blue Water Task Force

Surfrider Foundation Eastern Long Island Chapter
Peconic Baykeeper (PBK)
Concerned Citizens of Montauk (CCOM)

Effective Date of Plan: 11/01/2024

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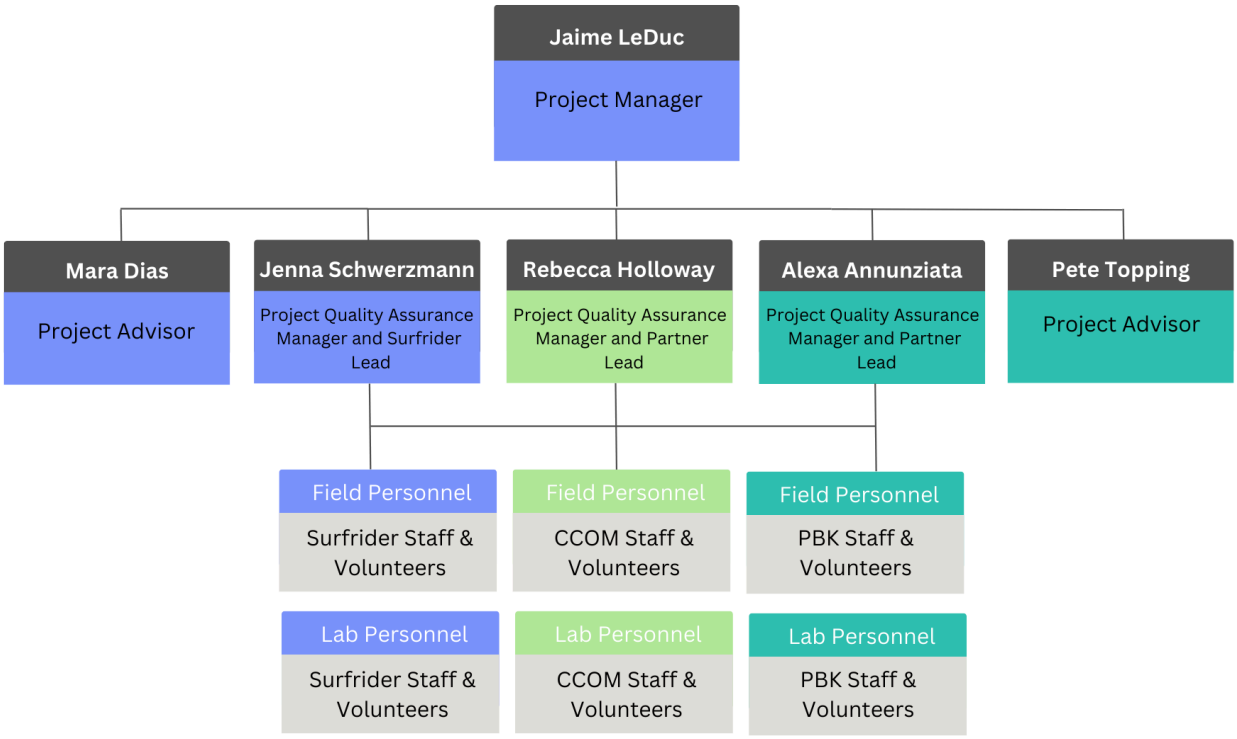

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Project/Task Organization

Name	Role	Organizational Affiliation/Title	Responsibilities (specific to this project)
Jenna Schwerzmann	Project Quality Assurance and Surfrider Lead	Surfrider Foundation/ Chapter Manager	Collaborate with project manager and partner leads, quality assurance, oversight and assessments, data verification, evaluation and usability, ensuring corrective actions are completed.
Alexa Annunziata	Project Quality Assurance Manager and Partner Lead	Peconic Baykeeper/ Director of Outreach	Collaborate with project manager and Surfrider lead, quality assurance, oversight and assessments, data verification, evaluation and usability, ensuring corrective actions are completed.
Jaime LeDuc	Project Manager	Surfrider Foundation/Blue Water Task Force Manager	Collaborate with project quality managers and partner leads.
Rebecca Holloway	Project Quality Assurance Manager and Partner Lead	CCOM Manager of Environmental Advocacy	Collaborate with project manager and Surfrider lead, quality assurance, oversight and assessments, data verification, evaluation and usability, ensuring corrective actions are completed.
Staff and Volunteers	Field Personnel	Peconic Baykeeper Surfrider Foundation CCOM	Field sampling, data analysis
Pete Topping	Project Advisor	Peconic Baykeeper/Executive Director & Baykeeper	Advise on projects, provide insight for growth and expansion.
Mara Dias	Project Advisor	Surfrider Foundation/Water Quality Initiative Sr. Manager	Advise on projects, provide insight for growth and expansion, share QAPP and project QA/QC protocols with other Surfrider Foundation Blue Water Task Force programs

Problem Definition and Project Objectives

Problem Definition

Clean water is a critical component of healthy ecosystems and communities across the East End of Long Island. Clean waterways support safe recreational activities, vibrant local economies, and the overall health of the environment and coastal ecosystems. Commercial fishing and sustainable aquaculture are two locally important industries that rely on clean water, while beach-going, surfing, paddling, boating, and recreational fishing are just a few of the very popular pursuits that people enjoy on the East End, especially during the summer.

However, stormwater runoff and inadequate wastewater treatment (septics and cesspools) pollute local water bodies with excess nutrients and fecal pathogens. This pollution contributes to harmful algal blooms and low dissolved oxygen levels, which stress ecosystems and pose public health risks. Given these ongoing issues, it is crucial to monitor water quality to ensure safe recreation and build community awareness of pollution problems so they can be addressed.

The Suffolk County Department of Health Services conducts an extensive “seasonal” water quality monitoring program to test public lifeguarded bathing beaches for fecal indicator bacteria. This program runs from May to September, with testing frequency varying from site to site, but could be as little as monthly at many of the ocean beaches on the South Fork. The County does not test during “off-season” months, which still see year-round recreational use, especially by surfers. Additionally, many recreational waterways without life-guarded beaches, such as semi-enclosed harbors, creeks, and coastal ponds, are not covered by the County’s testing program, even though they are still enjoyed by the public. Water quality in these water bodies are also more likely to be affected by elevated bacteria levels from stormwater runoff and other sources of pollution because the contamination persists longer with less flushing and circulation than occurs at more open bay and ocean beaches. The lack of bacteria monitoring in these waters results in a lack of public notification of pollution events that could put human health at risk as water-dependent recreation is not limited to county-monitored, lifeguarded beaches. This gap in available public health data along with growing awareness of water quality impairments on the East End has created a concern for community members and user groups. The public needs reliable and accessible data to make informed decisions about their recreation, and local decision-makers and stakeholders need more information on where

pollution concerns exist so solutions can be put in place. The Blue Water Task Force is helping to fill this data gap by supplementing the County's seasonal testing program and providing additional water quality information to the public year-round.

This project will address the following questions:

1. What are the enterococcus fecal indicator bacteria levels (as a proxy for human health risk) for each monitoring site at the time of sampling to help inform safe water recreation?
2. Are there sampling sites where chronically elevated levels of enterococcus indicate pollution concerns and public health risk?
3. Can Blue Water Task Force water quality data help build community awareness of local pollution problems?
4. Can Blue Water Task Force water quality data be a tool to help local decision-makers and stakeholders seek and implement pollution solutions?

Project Objectives

The objective of the Eastern Long Island (ELI) Blue Water Task Force (BWTF) is to collect water samples from a variety of recreational water use sites, analyze water samples for enterococcus bacteria concentrations, and provide timely and accessible data to user groups to inform safe recreation and pollution solutions. Program objectives include the following:

- Objective 1: Identify test sites that fulfill the Blue Water Task Force site selection criteria. This includes sites of recreational value that are unmonitored or infrequently monitored by the Suffolk County Department of Health Services and sources of pollution that affect these recreational areas such as inputs of stormwater and other freshwater conduits of pollution.
- Objective 2: Collect water samples and note weather, tides and other physical site conditions as per collection schedule.
- Objective 3: Process water samples and test for enterococcus using the IDEXX Quantitray-2000/Enterolert method.
- Objective 4: Report testing data to the public within 48 hours of sampling to inform safe recreation.
- Objective 5: Prepare annual reports inclusive of annual trends and site-specific analytics to build community awareness of local water quality conditions.

- Objective 6: Share data trends and analyses with decision-makers and local stakeholders to advocate for pollution source investigations and mitigation measures for chronic enterococcus impairments where appropriate.

The ELI BWTF will collect water samples and record weather and tidal data in accordance with a predetermined schedule set by the BWTF Program Leads. The samples will be tested for enterococcus bacteria using Standard Method 9230-D with IDEXX's Enterolert/Quantitray-2000 methodology as per EPA's regulation 40 CFR 136. All results will be posted online on the Surfrider Foundation's Blue Water Task Force website and shared with the public when they are available, typically within 48 hours of sample collection. This data collected will help support user groups in their recreation decisions with respect to when the tests are conducted *(ex: more frequent tests conducted in the summer months vs winter months).* The collection of data over time will help to identify sites that may be experiencing chronic issues. The results will be analyzed annually, and a report made public. Presentations and efforts to reach community groups and other interested user groups will be made using these reports.

Data Users

All water quality data is posted publicly on the Surfrider Foundation's website at bwtf.surfrider.org. Test results for each site are compared to the water quality criteria established by the New York State Department of Health (NYSDOH) to protect public health in recreational water.

All three partner organizations also widely disseminate data via social media and email promptly after test results are available to inform the public on where conditions are safe for recreation and where there are pollution concerns. This sharing of data as well as the release of an annual report helps to build community awareness of local pollution concerns and provides local decision-makers and stakeholders valuable information on where to focus pollution investigations and solutions. The water quality data can also be used by other non-for-profit organizations and NGOs to inform their projects and priorities. Program leads also periodically give presentations to community groups, local government officials, and staff and advisory boards to share results and summarize findings about sites. These presentations include an explanation of our methods, highlight key findings and provide recommended actions for local government and community members alike.

Background and History

Background

Beach closures and advisories are commonly implemented due to excessive stormwater runoff that carries pollution to recreational waters and also due to sewage contamination. On the Eastern End of Long Island, primary water quality impairments are due to the prevalence of inadequate wastewater treatment (cesspools and septics), stormwater runoff, agricultural activities, and waterfowl. Rising water levels and more frequent storm events due to climate change further exacerbate threats to water quality.

For over 30 years, Surfrider Foundation's Blue Water Task Force Program has empowered volunteers to monitor beaches and coastal watersheds in the United States and Puerto Rico to inform safe recreation and build community awareness of local pollution problems. The Eastern Long Island Blue Water Task Force is a unique partnership between the Surfrider Foundation Eastern Long Island Chapter, Peconic Baykeeper and Concerned Citizens of Montauk (CCOM) with dedicated program leads at each organization and decades of experience cumulatively. The Blue Water Task Force is a highly capable program that can successfully monitor for enterococcus in the watersheds on Eastern Long Island.

History

In 1990, the Surfrider Foundation launched the first BWTF program to provide critical water quality information to protect public health at the beach, raise awareness of local pollution problems and bring communities together to implement solutions. In 2013, the Eastern Long Island Chapter of the Surfrider Foundation launched their local BWTF program with CCOM over water quality concerns, starting with just seven sites and five volunteers in East Hampton. Samples were processed using laboratory equipment located at the CCOM office. Peconic Baykeeper joined Surfrider and CCOM as a program partner in 2016 to expand the program's geographic range and address shared water quality concerns. These samples were processed in a designated research lab at Stony Brook University's Southampton Campus. In 2020, due to the COVID-19 pandemic and restricted access to the Stony Brook Lab, the Blue Water Task Force purchased its own laboratory equipment to create a new laboratory at Peconic Baykeeper's office in Hampton Bays, NY.

For over a decade the ELI Blue Water Task Force has grown both the number of test sites and volunteers. As of January 2024, program partners collectively monitor 83 sites across the East End of Long Island with 16 volunteers who collect water samples for the program. The Blue Water Task Force has been providing reliable and accessible information to the public for over 10 years and will continue to do so with the guidance of the Quality Assurance Project Plan (QAPP), New York State Department of Environmental Conservation (NYSDEC) guidelines, and the United States Environmental Protection Agency (USEPA) guidance documents pertinent to the scope of this program.

Project Location

Project Location

The project area is located on the East End of Long Island, New York and incorporates a wide array of water bodies, including ocean beaches, bay beaches, tidal creeks/embayments, freshwater ponds, and outfall infrastructure (pipes and culverts). The project includes monitoring sites in the Peconic and South Shore Estuaries, both significant estuaries of Long Island that connect to the Atlantic Ocean. The coastal area is highly developed, and many sites are in residential areas (towns/populated areas) or in large recreational areas (dunes, beaches, designated for recreation). New York is in the Northeast of the United States and Long Island experiences all four seasons. The annual sampling calendar begins in January and ends in December of the same year, with an average of 25 sampling days per site per year. The water and air temperatures increase from low readings in the winter to warmer readings in the spring, then peak in July and August before decreasing over the fall months.

The Blue Water Task Force program has developed an informal set of criteria to aid in determining if a site is appropriate for inclusion in the program. These include the following:

- The site is not currently tested (or is infrequently tested) by the Suffolk County Department of Health
- The site has high recreational value.
- The site has public access/or is part of a water body that has public access.
- There is a current pollution issue the community or residents are concerned about (e.g. stormwater runoff)
- A volunteer is available to assist in site monitoring year-round.
- The site is located in an underserved community or frequented by underserved community members.

Not meeting all these criteria does not discount a site from being selected but these are considerations. The criteria reflect the goals and objectives of this project, as it supports seeking out recreational locations not already being monitored or do not have data readily accessible. Current program monitoring sites are included in Tables 1-6 below.

Sites By Town

MONTAUK	Site Type
Ditch Plains: East of Jetty	Ocean Beach
Fort Pond: Industrial	Pond
Fort Pond: Ramp	Pond
L I Sound: Fort Pond Bay at Navy Rd	Bay Beach
L I Sound: Fort Pond Bay at Tuthill Rd	Bay Beach
Lake Montauk: Causeway South	Harbor
Lake Montauk: East Creek	Harbor
Lake Montauk: Harbor	Harbor
Lake Montauk: Little Reed Pond Creek	Harbor
Lake Montauk: Nature Preserve Beach	Harbor
Lake Montauk: South Beach	Harbor
Lake Montauk: Stepping Stone	Harbor
Lake Montauk: West Creek	Harbor
Surfside Place: Ocean Beach	Ocean Beach
Tuthill Pond	Pond

Table 1: Sites and water type for Montauk.

EAST HAMPTON	Site Type
Accabonac Harbor: Louse Point Beach	Bay Beach
Accabonac Harbor: Shipyard Ramp	Harbor
EH Town Pond	Pond
Fresh Pond: Beach	Bay Beach
Fresh Pond: Creek	Creek
Georgica Beach Assoc./ Third Jetty	Ocean Beach
Georgica Pond Beach-side	Pond
Georgica Pond: Cove Hollow Access	Pond
Georgica Pond: Rte 27 Kayak Launch	Pond
Hook Pond South	Pond
Hook Pond: Dunemere Lane	Pond
Napeague Harbor: East	Harbor
Napeague Harbor: West	Harbor
Northwest Creek: Ramp	Harbor
Three Mile Harbor: Folkstone Drive	Harbor
Three Mile Harbor: Head of the Harbor	Harbor
Three Mile Harbor: Settler's Landing	Harbor

Table 2: Sites and water type for East Hampton.

SOUTHAMPTON	Site Type
East Quogue: Tiana Bay Park	Bay Beach
East Quogue: Triton Lane	Ocean Beach
East Quogue: Weesuck Creek Boat Ramp	Bay Beach
Flanders: Long Neck Boulevard	Bay Beach
Flying Point: Mecox Bay	Bay Beach
Flying Point: Scott Cameron Beach	Ocean Beach
Hampton Bays: Argonne Rd. East	Bay Beach
Hampton Bays: Lynn Ave	Bay Beach
Hampton Bays: Meschutt Beach	Bay Beach
Hampton Bays: Old Ponquogue Bridge- Marine Park	Bay Beach
Hampton Bays: Ponquogue Beach	Ocean Beach
Hampton Bays: Red Creek	Harbor
North Sea Harbor, Noyac Rd.	Harbor
North Sea: Big Fresh Pond	Pond
North Sea: Little Fresh Pond North	Pond
North Sea: Little Fresh Pond West	Pond
North Sea: Towd Point	Bay Beach
Noyac: Circle Beach	Bay Beach
Noyac: Circle Beach Estuary	Harbor
Sag Harbor: Havens Beach	Bay Beach
Sag Harbor: Little Northwest Creek	Creek
Sag Harbor: Long Beach	Bay Beach
Sag Harbor: Nineveh Beach	Bay Beach
Sag Harbor: Windmill Beach	Harbor
Sagg Main Beach	Ocean Beach
Sagg Pond	Pond
Southampton: Gin Lane/Bathing Corp.	Ocean Beach
Southampton: Heady Creek	Creek
Southampton: Old Town Beach	Ocean Beach
Tuckahoe: Cold Spring Pond South	Harbor

Table 3: Sites and water type for Southampton.

NORTH FORK	Site Type
Cutchogue: Wickham Creek	Creek
North Fork: Bay Ave, Mattituck	Bay Beach
North Fork: S. Jamesport Ave.	Bay Beach
Southold: Breezy Point Inlet	Bay Beach
Southold: Conkling Point Inlet	Bay Beach
Southold: Goose Creek	Creek
Southold: Richmond Creek East	Creek
Southold: Richmond Creek West	Creek
Riverhead: Indian Island County Park	Bay Beach
Riverhead: Wildwood Lake	Lake

Table 4: Sites and water type for the North Fork.

Shelter Island	Site Type
Shelter Island: West Neck Harbor Anchorage	Harbor
Shelter Island: Coecles Harbor Anchorage	Harbor
Shelter Island: Dering Harbor	Harbor

Table 5: Sites in Shelter Island Harbor.

Stormwater	Site Type
Accabonac Harbor: E of Old Stone Hwy Culvert	Stormwater
EH Fithian Lane: South Drain	Stormwater
EH Methodist Lane Bioswale	Stormwater
EH Village Green Bioswale	Stormwater
Lake Montauk: Benson Dr. Culvert	Stormwater
L I Sound: Soundview Drive Beach	Bay Beach
L I Sound: Soundview Drive Culvert	Stormwater
Northwest Creek: Culvert	Stormwater
Surfside Place: Outfall Pipe	Stormwater

Table 6: Stormwater testing sites.

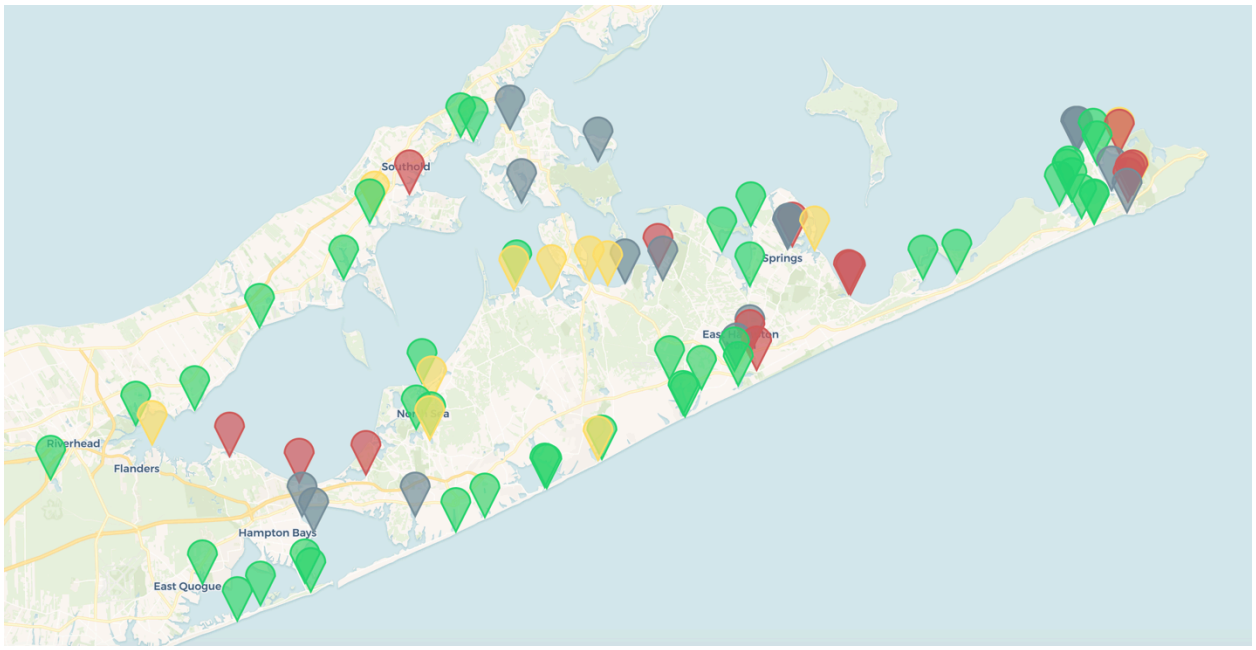

Figure 1: Map of Blue Water Task Force testing sites on the East End of Long Island as of January 2024. This is an example of how results are displayed on the BWTF website. The different colors represent the bacteria levels, with green indicating “low” bacteria, yellow indicating “medium” bacteria, and red indicating “high” bacteria. The gray icons mean that the site has not been tested in over 28 days.

Project Schedule

Activities	Organization/Group responsible for activity completion	Timeframe work will be done
Preparation of QAPP	Alexa Annunziata, Project Quality Assurance Manager	01/2024-04/2024
Review of QAPP	Jenna Schwerzmann and Jaime LeDuc Project Managers Pete Topping and Mara Dias, Project Advisors	04/2024-05/2024
Submittal of QAPP	Alexa Annunziata, Project Quality Assurance Manager	05/01/2024
Training of Field Volunteers	Alexa Annunziata Jenna Schwerzmann Rebecca Holloway	Annually
Sample Collection	Alexa Annunziata Jenna Schwerzmann BWTF Volunteers Blue Water Task Force Partner Interns	Annually
Data Evaluation	Jenna Schwerzmann Mara Dias Jaime LeDuc	Annually

Existing Data

Existing Data	Data Source	How Data Will Be Used	Acceptance Criteria
Weather Data	Windfinder App or alternative app approved by project staff	This is additional field data collected.	N/A
Tide Data	Windfinder App or alternative app approved by project staff	This is additional field data collected.	N/A

Existing data that will be used for this project will be additional weather data collected in the field by staff and volunteers. That will include relevant weather data, tide data, and water temperature data, depending on the site. The preferred app that all staff and volunteers will be asked to use for wind speed and tide is Windfinder.

Quality Objectives

Staff will undergo training in collection methods. Those who will process samples in the laboratory will receive training and will complete a Demonstration of Capability (DOC) to the satisfaction of the Project Quality Assurance Manager. Volunteers and interns will complete a lab skill assessment conducted by the Project Quality Assurance Manager.

Field

In the field, staff and volunteers will use scientific digital thermometers to measure the temperature of the water in Fahrenheit within +/- 1°F.

In the field, staff and volunteers will use approved weather data apps to complete the data sheet.

In the field, staff and volunteers will use an approved tide data app and consistently use the same tide station for their respective sites to complete the data sheet.

Laboratory

In the laboratory, staff and volunteers will execute one blank control with 100 mL of distilled water and one Enterolert reagent per sampling day. This blank control should not result in any positive wells and will provide a control tray to compare samples to under the blacklight when reading results. In the event of positive cells in a blank control the entire dataset produced in the affected lab from that sampling event will not be used.

Every six months or upon receiving a new lot of IDEXX reagent a positive control with IDEXX enterococcus and 100 mL of distilled water will be completed. The positive controls will be read and recorded in the laboratory binder. The results will be compared to the IDEXX standard deviation for the given LOT number of the bacteria sample. If the results fall outside the range that data will not be used.

In the laboratory, staff and volunteers will record the incubator temperature when samples are placed in the incubators and when the samples are removed.

In the laboratory, staff, and volunteers will use the appropriate glassware to measure distilled water and extract 10 mL sample water.

Staff and volunteers will randomly select one sample during processing for duplication at each sampling event. The duplicate will be prepared in the same methods as the other samples. The results of the lab duplicates should fall within a 95% confidence interval, which can be determined by the IDEXX 95% confidence intervals document (Appendix 1.)

Directions for duplicate sample:

Once both samples are scored and recorded in the duplicate log, take note of the upper and lower confidence limits of each sample (labs should keep printed copies of these intervals to reference the number of small vs. large fluorescing wells). If Replicate 1 falls within Replicate 2's upper and lower confidence intervals, and vice versa, then the results of both samples statistically agree, and your lab methodology shows acceptable consistency and precision. Results from only one replicate need to be entered into the national database. If reporting

publicly, reporting the higher MPN value would be precautionary in protecting public health in beach water.

Bias:

This sampling program uses a judgmental design, where researchers select sampling sites based on specific criteria, and is considered a biased sampling method. It is designed to provide water quality data to inform human health risk in popular recreational waters and assess contributing pollution sources on the East End of Long Island. As such, we target sites where people are most likely to be recreating and where we can expect problems with fecal contamination to exist. Our sampling sites were not chosen to assess the water quality conditions of an entire watershed or waterbody. Additionally, there are a number of seasonal influences on fecal indicator bacteria concentrations including rainfall, extreme tides, and seasonal changes in human and animal populations.

Representativeness:

Our sampling plan is designed to provide water quality data to inform human health risk in popular recreational waters and assess contributing sources of pollution on the East End of Long Island. Sampling sites are located over a diverse spectrum of fresh, brackish, and marine ecosystems, including freshwater creeks and sources of stormwater runoff, coastal ponds, estuaries, harbors, Peconic Bay, and the Atlantic Ocean.

Sampling frequency reflects seasonal weather patterns and recreational use of coastal waterways and beaches. We test weekly from June to September, bi-monthly in October, November, and May, and once a month from December to April to maintain a year-round data record of water quality conditions.

Comparability:

We follow sampling guidance recommended by the Environmental Protection Agency's National Beach Guidance and Performance Criteria for Grants, 2014 edition and use Environmental Protection Agency (EPA)-approved testing methods so that our bacteria data can be compared to recreational water quality data collected by agencies in New York and other coastal states, like the Suffolk County Department of Health Service's beach program. Our data also meet the Open Data Standard for Recreational Water Quality established by the USEPA, the Alberta Health Service in Canada, as well as NGOs in both countries to ensure that our results are findable, accessible, interoperable, and reusable (meeting FAIR principles). All our test results are compared to the recreational water quality criteria established by the NY State Department

of Health, approved by EPA, and used by the Suffolk County Department of Health Services to communicate their fecal indicator bacteria data and make beach management decisions. See Bacteria Key description on the BWTF website and below used to compare our data to established water quality criteria and communicated results to the general public.

Bacteria level	Range	Description
Low/Green	≤ 35 MPN/100 mL	35 is the 30-day allowable Geomean concentration established by the recreational water quality criteria revised by EPA in 2012
Medium/Yellow	36 – 104 MPN/100 mL	104 is the Beach Action Value (BAV) established by NYSDOH and approved by EPA to issue swim advisories and/or close beaches in NY State.
High/Red	>104 MPN/100 mL	

Table 7: Criteria levels listed by NYSDOH

Completeness:

The goal is to collect and process 100% of the planned number of samples per sampling cycle; however, 90% is acceptable for the purposes of the project. If weather, scheduling, or safety issues impede a sampling event, the event may be canceled or rescheduled. In 2023, we monitored 83 sites and collected 1813 samples and we expect a similar level of activity to continue unless there are unanticipated interruptions due to staffing or volunteer capacity.

Sensitivity:

The IDEXX Enterolert and Quanti-Tray Most Probable Number method is sensitive to 1 colony forming unit (CFU) enterococci per 100 mL water; it enumerates up to 2,419 cfu enterococci per 100 mL water. As per standard methods, saline or brackish water samples are diluted tenfold. The lower limit thus becomes 10 cfu enterococci per 100 mL seawater and the maximum, 24,190 cfu enterococci per 100 mL seawater.

Data Collection Methods

Sampling Design

Sampling Schedule

- Volunteers and staff collect samples from designated sample sites on Monday mornings throughout the year. If a holiday is observed on a Monday, an alternative date is selected ahead of time, typically a Tuesday.
- All sampling dates are established well ahead of time so all volunteers, staff, and partners have ample notice.
- In the event of inclement weather or other hazardous conditions (i.e. storm surges or large waves) staff leads will determine if a sampling event needs to be canceled or rescheduled to protect volunteer safety.
- Each volunteer is also asked to use their judgment to assess safe access upon arrival at their sampling site and if there are any concerns due to weather, flooding, tides, wave action or other conditions that could put their safety at risk, then they are encouraged to skip that site that day.
- To ensure samples are processed within the six-hour window necessitated by the methodology, volunteers and staff do not sample before 7:00 am and samples are brought to the lab by 12:00 pm .
- Starting in June and continuing through September, Surfrider ELI alternates between Hook Pond South and Hook Pond Dunemere with EH Town Pond. Both Hook Pond sites will be sampled one week while the EH Town Pond is skipped, and the reverse is done the following week.
- Sampling is conducted throughout the year, but the frequency changes to reflect recreational use – see Table 8 below.

Month	**Sampling Frequency**
January	One testing date
February	One testing date
March	One testing date
April	One testing date
May	Two testing dates

June	Four testing dates
July	Four testing dates
August	Four testing dates
September	Four testing dates
October	Two testing dates
November	Two testing dates
December	One testing date

Table 8: Sampling frequency.

Sampling Locations

There are 83 sampling locations for this project. Sampling site locations are evaluated annually as of 2024. GPS coordinates for current sampling locations are listed in Appendix 2.

Sampling Methodology

After an assessment of safe access, samplers will first fill out the data sheets and label the sample bags before proceeding to the water to collect their water sample and measure the water temperature. Samples will be kept in a cooler with an ice pack until they reach their final destination.

Water samples will then be collected using one of the following methods. Samples will be collected into sterilized 100 mL Whirl-Paks. Care must be taken not to touch the inside of the Whirl-Paks to avoid contamination. Care must also be taken not to disturb the waterbody substrate. If the sediment is disturbed, which is more likely in muddy ponds and creeks, the volunteer will wait for it to settle before collecting a sample or make sure to sample the water beyond the disturbed area by reaching out in front of it or using a sample pole.

Method:

1. Label the Whirl-Paks with the unique site name.
2. Sanitize hands before you open the Whirl-Pak. After tearing off the perforated portion at the top, store it in a secure place to prevent litter.

3. *Wading in calm water:* Wade in until you reach the appropriate depth for sampling (i.e., at minimum knee depth). Try to disturb as little bottom sediment as possible. In any case, be careful not to collect water that has sediment from bottom disturbance. Make sure to pull the white tabs on either side of the Whirl-Pak to ensure a wide opening of the sample bag, holding one of the twist tie ends in one hand, gently swoop the bag into the water to fill the bag with 100 mL of water. Gently pour out any excess. Holding the twist tie ends in either hand, vigorously whirl the bag until it has closed and the bag has an air pocket. Secure the twist ties. When turned upside down the bag should not leak.
4. *Wading in Surf Zone:* Sampler safety is the first priority, a water sample is not worth a rescue in rough ocean conditions. Wade in until you reach the appropriate depth for sampling (i.e., at minimum knee depth). In the surf zone it is impossible to find consistent water depth, but samples should be collected as close to knee depth as possible. Samples should be collected on incoming waves, while avoiding collecting as much sand sediment and algae as possible. The samples should be collected six inches below the surface of the water as much as possible. Make sure to pull the white tabs on either side of the Whirl-Pak to ensure a wide opening of the sample bag, holding one of the twist tie ends in one hand, gently swoop the bag into the water to fill the bag with 100 mL of water. Gently pour out any excess. Holding the twist tie ends in either hand, vigorously whirl the bag until it has closed and the bag has an air pocket. Secure the twist ties. When turned upside down, the bag should not leak.
5. *Wading in a Creek or Stormwater:* It is particularly important for volunteers to be careful in these locations where bacteria levels tend to be chronically high. Wade in until you reach the appropriate depth for sampling (i.e., at minimum knee depth). Make sure that there is an appropriate amount of water to sample from. Try to disturb as little bottom sediment as possible. In any case, be careful not to collect water that has sediment from bottom disturbance. Make sure to pull the white tabs on either side of the Whirl-Pak to ensure a wide opening of the sample bag, holding one of the twist tie ends in one hand, gently swoop the bag into the water to fill the bag with 100 mL of water. Gently pour out any excess. Holding the twist tie ends in either hand, vigorously whirl the bag until it has closed and the bag has an air pocket. Secure the twist ties. When turned upside down, the bag should not leak.
6. *Boat:* Carefully reach over the side and collect the water sample on the upstream side of the boat. Make sure to pull the white tabs on either side of the Whirl-Pak to ensure a wide opening of the sample bag. Holding one of the twist tie ends in one hand, gently swoop the bag into the water to fill the bag with 100 mL of water. Gently pour out any excess. Holding the twist tie ends in either hand, vigorously whirl the bag until it has

closed and the bag has an air pocket. Secure the twist ties. When turned upside down, the bag should not leak.

7. *Extension pole:* Insert open Whirl-Pak into the holder. Make sure to pull the white tabs on either side of the Whirl-Pak to ensure a wide opening of the sample bag. Holding the pole to reach the desired depth, gently swoop the bag into the water to fill the bag with 100 mL of water. Remove the bag from the holder and gently pour out any excess. Holding the twist tie ends in either hand, vigorously whirl the bag until it has closed and the bag has an air pocket. Secure the twist ties. When turned upside down, the bag should not leak.
8. Exit the water or the sampling area safely, and always be aware of your surroundings. If necessary, repeat the process above until you get a leak-free, watertight sample. Make sure to apply anti-bacterial soap or thoroughly wash hands after sample collection.
9. Note that all samples from a given location should be taken in the same manner throughout the sampling season and noted in the addendum (i.e., wading, from a boat, or using an extension pole).
10. If possible, leave a 1-inch air space or fill to the shoulder of the Whirl-Pak. Do not fill the Whirl-Pak completely to the top so that the sample can be gently inverted to resuspend contents just before analysis.
11. Fill in the data sheet. This is important because it tells the lab coordinator the environmental conditions, the time of each sample, and which Whirl-Pak goes with which sampling location. Make sure to sign and write the time in the Chain of Command section every time you pass off samples.
12. Place samples on ice or ice packs in the cooler for transport to the lab/office.

See Appendix 3 for photo references for sampling.

Sample Labeling, Custody and Transport

Samples will be labeled using the following format:

- Location Name

Accompanied by the data sheet. On the data sheet, the chain of custody will be signed each time the sample and the data sheet are passed into the possession of a new person.

All samples will be transported to the office on ice after sampling is complete to prevent bacterial growth.

Matrix	# of Sampling Locations	# of Samples per Location	Parameter	Field QC Samples	Total Number of Samples/ Measurements	Sampling SOP Reference	Project Objective for Sampling and Analysis or Monitoring
Water	83	1 sample at each location per sampling event	Enterococcus	Temperature blanks will be collected in the main coolers No field reps.	83 per sampling event ~2,158 samples a year	Standard Method 9230-D with IDEXX's Enterolert/Quantitray-2000	Measure MPN of Enterococcus of selected sites, year-round to better inform the public

Laboratory Instructions for IDEXX Quanti-tray/Enterolert method, 1:10 dilution

General Overview

This method involves diluting a water sample to avoid interference from non-target organisms, adding the Enterolert reagent, sealing the sample mixture in a Quanti-tray, and placing it in an incubator at 41°C for 24 hours. After incubation, positive reactions between the reagent and any enterococcus bacteria in a sample are determined by shining a UV light on the sample trays and noting any fluorescent wells. Test results are expressed as the Most Probable Number (MPN) of enterococcus per 100 mL using the IDEXX Quanti-Tray/2000 MPN Table (Appendix 4). Special care should be taken to operate this procedure in a sterile environment using aseptic technique (no contamination). A blank control must be run with every set of processed samples to ensure that your dilution water and plastic ware, or glassware, have not been contaminated.

Preparing the Enterolert reagent/sample mixture

1. Turn on the Quanti-Tray sealer to warm it up. It takes 10 minutes.
2. Make sure the temperature of your incubator is 41°C.
3. Wipe down your workspace with disinfectant spray.
4. Wash your hands with antibacterial soap.

5. Pull sterilized bottles from the shelf, including the control bottle, lab replicate bottle, and sample mixing bottles.
6. To open the mixing bottle, remove the seal around the lid and loosen the cap, but leave it on to prevent contamination from the air. Never touch the top of the bottle or inside the lid with your fingers after the lid has been removed. Only the outside of the lid and the sides and bottom of the bottle can be touched.
7. Add 100 mL of distilled water to the control bottle and add one packet of Enterolert.
8. Pour exactly 90 mL of distilled water into each sterile mixing bottle. Measure with a graduated cylinder.
9. Add one packet of Enterolert to each sample bottle, including the control. Hold the snap packs facing away from your face and pop open the top.
10. Replace the cap and swirl the mixing bottle so the Enteroalert starts to dissolve and does not settle and stick to the bottom edges.
11. When you are ready to start pipetting samples, remove the sample bag from the cooler and place it in a cup, glass, or other container to keep it upright. Work with one sample at a time.
12. Loosen the cap on the mixing bottle, but leave it on to prevent contamination from the air.
13. Gently invert the Whirl-Pak sample bag 2-3 times to suspend anything that may have settled to the bottom of the sample.
14. Open the Whirl-Pak sample bag by untwisting the yellow tabs and unrolling the top. Then pull on the white tabs only to open the top of the bag. Do not touch the bag at the top or inside the top.
15. Take a 10 mL glass pipette out of the metal box and install the pipette pump on top. If it is a disposable pipette, open only the top of the protective sleeve to install the pump and leave the rest of the pipette covered.
16. Do not touch the lower half of the pipette with your fingers, or let it touch anything else in the lab. It is suggested to lay the pipette on a flat surface, with the lower half of the pipette hanging over the side of the table while not coming into contact with anything.
17. Remove the cap from the mixing bottle and keep it in your non-pipette hand or place it face up on the lab bench so the inside of the cap does not touch the bench.
18. Place the pipette inside of the top of the opened Whirl-Pak bag and extract 10 mL of sample water. Then, discharge the sample water into the sterile mixing bottle by depressing the long white bar on the side of the pump. While holding the pipette over the bottle, turn the thumb wheel until the pump plunger is flush with the top of the pump. This will reset the pump and discharge any remaining fluid into the bottle.

19. While still holding the pipette, quickly place the cap back on the mixing bottle to prevent contamination from the air.
20. Re-seal the sample bag and set it aside in case the sample is spilled or contaminated and you need to remix a new solution.
21. Dispose plastic pipette or place glass pipette in an empty metal box after each sample and repeat above steps until all sample sites have been completed.

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Filling the Quanti-trays with the reagent/sample mixture

1. One Quanti-Tray is needed per sample bottle. In permanent marker, label the back with the site name and the date.
2. Loosen the cap of the sample you are about to pour into the tray.
3. Use one hand to hold a Quanti-Tray upright with the plastic well side facing your palm.
4. Squeeze the upper part of the Quanti-Tray so that the tray bends toward the palm making a U-shape.
5. Gently pull the foil tab to separate the foil from the tray. Don't touch the inside of the foil or tray as this could contaminate it.
6. Remove the cap from the sample bottle and set on the lab bench, facing up, so no liquid from the cap gets on the bench.
7. Pour the reagent/sample mixture into its corresponding Quanti-tray while avoiding contact with the foil tab.
8. Tap the small wells to release any air bubbles. Allow foam to settle.
9. Place the sample-filled tray into the rubber insert of the Quanti-Tray Sealer with the plastic well side facing down.
10. Place the rubber sealer form with the tray into the inlet hopper of the sealer machine with the large reservoir cell placed the farthest away from the machine and the small cells entering the machine first.
11. Push the form into the machine gently. It will automatically grab the rubber form and tray and draw them through the sealer. It will also stop before the tray comes out.
12. Remove the sealed tray on the other side of the machine.
13. Check to see that all plastic wells on the tray are filled with the sample. A well is considered full if it is at least ½ full. Up to two wells can even be completely empty and the tray can still be used as the results will still be statistically valid.

14. If the tray is not sealing properly or there are more than two empty cells, you will have to discard it, prepare a new sample/reagent mixture from the reserved sample bag, and pour it into a new tray.
15. Set aside your sealed Quanti-Trays until you are ready to place them all together into the incubator at 41°C. It is best to minimize the number of times you open the incubator door so as not to disturb the temperature setting. While stacking IDEXX trays, remember to place the flat side down and well side up, and alternate directions so the trays lay flat.
16. Once inside the incubator, the trays can be in stacks of up to ten, but each stack should be spread out as much as possible to ensure airflow for each tray.
17. Note on your data sheet the time you placed the trays into the incubator. They will stay there for 24-28 hours.
18. Wash hands with antibacterial soap and wipe down the lab bench with disinfectant spray.

Reading the results (24 hours later)

1. The Quanti-Trays should be removed from the incubator after 24 hours and no later than 28 hours. Check the data sheet for the start time of incubation. Record the time at the reading the next day.
2. Turn UV light on and darken the room.
3. Shine UV light on each tray, looking for wells fluorescing blue. Wells that show a bright yellow color but do not fluoresce do not count as a positive result.
4. Note the number of large and small fluorescing wells on the data sheet.
5. If any wells in the control fluoresce, then there was contamination of your lab procedure, and the entire data set from the sampling event in the affected lab must be disregarded and not entered into the public database .
6. Determine the MPN for each sample by comparing the number of large and small positive wells with the MPN table.
7. Multiply the MPN by 10 to account for the dilution to determine the number of enterococcus colony forming units (cfu) in 100 mL of water.
8. Record the results on the data sheets and check that the control was zero.
9. Dispose of used trays.
10. Wash hands.
11. Enter data into the database.

If you are unsure whether a result is positive, compare the sample with a known negative. However, if the results are ambiguous based on the initial reading, incubate up to an additional 4 hours, but not to exceed 28 hours total, to allow the fluorescence to intensify.

Glassware Sterilization Procedures

Autoclave Procedure:

1. Autoclave indicator tape will be applied to the outside of all glass bottles and metal pipette boxes.
2. Autoclave tape features a visible black strip that confirms steam sterilization has occurred.
3. Bottles must be positioned right side up with cap loosely placed. Autoclave tape should be attached to the cap and bottle. Glassware should not come into contact with each other to ensure adequate air circulation within the autoclave.
4. The autoclave temperature is set to 121°C, with a sterilization cycle duration of 32 minutes for a cold start or 15 for a warm start.

ProSpore Ampoules Usage:

5. ProSpore Ampoules will be every 6-8 sampling events.
    a. They are self-contained biological indicators for validating steam sterilization.
6. Placement occurs at the center of the autoclave, representing the most challenging sterilization location.
7. Post-sterilization, ProSpore Ampoules are incubated for a minimum of 48 hours at 55° – 60°C to ensure accurate results.
    a. An optimized growth environment maintaining the incubation temperature is essential for precise outcome assessment.
8. The presence of a yellow coloration indicates bacterial growth, while no color change confirms spore elimination during sterilization.
9. Refer to the ProSpore Technical Report for detailed instructions.

Equipment List and Instrument Calibration

Equipment List

Field
Whirl-Pak sampling bags
Sampling poles
Gloves or hand sanitizer
Coolers with ice packs
Data sheets
Clipboards
Pens or pencils
Permanent markers
Thermometers
Smartphones
Lab
Glassware
Pipette pump
Incubator
Autoclave
Autoclave tape
Enterolert Reagent
Quanti Trays
Sealer
Bleach and paper towels
Distilled water

Instrument Calibration and Maintenance

Instrument/Equipment	Calibration Frequency	Maintenance Requirements
Autoclave	N/A	As per manufacturer's instructions
Incubator	Set point set before first use	As per manufacturer's instructions
Sealer	N/A	As per manufacturer's instructions

Logs will be kept to record the maintenance of each machine. A temperature log will be kept for the incubator to record the temperature of the incubator when samples are placed in and the

temperature of the incubator when samples are removed. See an example of maintenance logs in Appendix 5.

Data Sheets

The following data sheets to be utilized for this project are provided in the appendices as listed below:

- Laboratory Maintenance Logs Appendix 5
- Field Sampling and Chain of Custody data sheet – Appendix 6
- Checklists and Reminders for Volunteers and Interns - Appendix 7

Training and Specialized Experience

Training

Personnel/Group to be Trained	Description of Training	Frequency of Training
Staff, Volunteers, and Interns	Proper collection of field samples	Annual training in the Spring for everyone and initial 1-on-1 training provided before any individual samples for the first time.
Staff, Volunteers, and Interns	Proper processing of samples in the lab including reading results	Training prior to starting their role, annual refresher for volunteers as needed

Person	Specialized Experience	# of Years of Experience
Jenna Schwerzmann	*B.S. Marine Vertebrate Biology, experience in field sampling and laboratory analysis*	9
Alexa Annunziata	*Marine Conservation Biologist, experience in field sampling and in laboratory analysis.*	8
Jaime LeDuc	*M.S. Biological Sciences, experience overseeing water quality monitoring programs and managing science labs as an aquatic ecologist*	16
Rebecca Holloway	*B.S. Environment and Sustainability, experience in marine biogeochemistry, field sampling, community science, aseptic laboratory experience.*	7
Mara Dias	*M.S. Environmental Science, experience overseeing volunteer water quality monitoring programs and community-based resource management projects in coastal recreational waters.*	20+

Pete Topping	*B.S. Marine Science Biology, experience in field sampling, aseptic laboratory experience, and laboratory analysis.*	15

Assessments and Oversight

Assessment Type	Frequency of Assessment	What is Being Assessed	Who will Conduct the Assessment	How Issues or Deviations will be Addressed
Sampling protocol	Bi-Monthly	Sample container & transport; sample volume; chain of custody record; sample temperature	BWTF Leads	Personal communication with field personnel
Data Transcription	Bi-Monthly	Verification of data sheets against sample trays; completeness and accuracy of electronic data	BWTF Leads	Correct errors

Data Management

Data Management

All data will be collected on the field data sheets, and laboratory log sheets. After each field sampling event, the data will be checked for completeness, missing information, or questionable data/outliers. The individual responsible for data entry will contact the field sampling team for the missing data and have the team clarify any discrepancies with the data. The data will be entered into the BWTF database and shared online and via email. Paper logs will be stored in a binder in the lab.

The Project Quality Assurance Manager and Surfrider Lead will enter data into the database and the project leads will review 10% of the data of each sampling event to verify the accuracy of the data entered into the BWTF database from the field data sheets. The Project QA Manager and Surfrider Lead will aggregate the data and correct any obvious data inconsistencies or outliers. Additionally, all data will be aggregated and reviewed closely on an annual basis to identify any data recording or entry errors and prepare the data for analysis to be presented in an annual water quality report.

Data Review and Usability Determination

Data Checks

Field/Lab	Data Management
Sample collection and lab analyses performed according to SOPs and QA/QC, including temperature controls, lab replicates, positive controls, and negative controls/blanks.	Data entry and transcription errors

If a sample does not pass QA/QC, the Partner leads will make the initial identification of protocols that did not conform to the SOPs or QAPP protocol, and take corrective action to ensure that protocols are followed. Deviations from field procedures will be documented, and if it is determined that they do not impact data quality and usability, then the data will be noted (flagged) on the data sheet and attached to the electronic result entry. If the deviations do affect usability, for instance, if the temperature control limit is not met, or if a negative control yields a positive result, then the samples from the affected cooler

Appendix 1:

IDEXX 95% Confidence Intervals

IDEXX Quanti-Tray®/2000
MPN Table (per 100mL) with 95% Confidence Limits

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
0	0	<1	0.0	3.7
0	1	1.0	0.0	3.7
0	2	2.0	0.3	5.6
0	3	3.0	0.6	7.3
0	4	4.0	1.1	8.9
0	5	5.0	1.7	10.5
0	6	6.0	2.3	12.1
0	7	7.0	2.9	13.7
0	8	8.0	3.7	15.3
0	9	9.0	4.5	15.8
0	10	10.0	5.2	16.9
0	11	11.0	5.9	18.5
0	12	12.0	6.9	20.1
0	13	13.0	7.8	21.2
0	14	14.1	8.6	21.9
0	15	15.1	9.0	23.4
0	16	16.1	9.6	24.9
0	17	17.1	10.5	25.7
0	18	18.1	11.5	26.9
0	19	19.1	12.5	28.6
0	20	20.2	13.2	29.3
0	21	21.2	13.9	30.5
0	22	22.2	14.5	31.8
0	23	23.3	15.7	33.1
0	24	24.3	16.4	34.2
0	25	25.3	17.6	35.2
0	26	26.4	18.3	36.5
0	27	27.4	19.5	37.7
0	28	28.4	19.7	38.6
0	29	29.5	21.0	39.9
0	30	30.5	21.7	41.2
0	31	31.5	22.5	42.3
0	32	32.6	23.9	43.4
0	33	33.6	24.6	44.4
0	34	34.7	25.4	45.7
0	35	35.7	26.2	46.8
0	36	36.8	27.7	48.0
0	37	37.8	28.5	49.0
0	38	38.9	29.2	50.3
0	39	40.0	30.0	51.2
0	40	41.0	30.8	52.8
0	41	42.1	31.6	53.7
0	42	43.1	33.3	54.7
0	43	44.2	34.1	56.1
0	44	45.3	34.9	57.1

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
25	0	33.6	22.0	48.9
25	1	35.0	22.9	51.2
25	2	36.4	23.8	52.6
25	3	37.9	25.5	54.0
25	4	39.3	26.5	55.9
25	5	40.8	28.3	57.3
25	6	42.2	29.3	59.0
25	7	43.7	30.3	60.7
25	8	45.2	31.3	62.5
25	9	46.7	33.3	64.2
25	10	48.2	34.4	66.0
25	11	49.7	35.4	67.3
25	12	51.2	36.5	69.0
25	13	52.7	37.6	70.7
25	14	54.3	39.7	72.4
25	15	55.8	40.9	74.0
25	16	57.3	42.0	75.9
25	17	58.9	43.1	77.6
25	18	60.5	45.5	79.5
25	19	62.0	46.7	81.2
25	20	63.6	47.8	83.0
25	21	65.2	49.0	84.6
25	22	66.8	50.2	86.2
25	23	68.4	51.5	87.4
25	24	70.0	54.0	89.5
25	25	71.7	55.3	91.6
25	26	73.3	56.6	93.9
25	27	75.0	57.8	94.6
25	28	76.6	59.1	96.1
25	29	78.3	60.4	98.6
25	30	80.0	61.7	101.0
25	31	81.7	64.6	101.6
25	32	83.3	65.9	103.6
25	33	85.1	67.3	106.2
25	34	86.8	68.6	107.3
25	35	88.5	70.0	109.1
25	36	90.2	71.4	111.4
25	37	92.0	72.8	112.8
25	38	93.7	74.2	114.9
25	39	95.5	77.4	116.4
25	40	97.3	78.9	118.3
25	41	99.1	80.3	120.4
25	42	100.9	81.8	121.9
25	43	102.7	83.2	124.2
25	44	104.5	84.7	126.0

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
0	45	46.3	35.7	58.1
0	46	47.4	37.5	59.5
0	47	48.5	38.3	60.7
0	48	49.5	39.2	61.6
1	0	1.0	0.1	5.5
1	1	2.0	0.3	5.9
1	2	3.0	0.6	7.3
1	3	4.0	1.1	8.9
1	4	5.0	1.7	10.5
1	5	6.0	2.3	12.1
1	6	7.1	3.0	13.7
1	7	8.1	3.7	15.3
1	8	9.1	4.3	16.2
1	9	10.1	5.2	17.2
1	10	11.1	6.0	18.5
1	11	12.1	6.8	20.1
1	12	13.2	7.6	21.7
1	13	14.2	8.7	22.2
1	14	15.2	9.4	23.6
1	15	16.2	9.7	25.1
1	16	17.3	10.6	26.4
1	17	18.3	11.6	27.0
1	18	19.3	12.6	28.6
1	19	20.4	13.3	30.0
1	20	21.4	14.0	30.7
1	21	22.4	14.7	32.3
1	22	23.5	15.8	33.1
1	23	24.5	17.0	34.5
1	24	25.6	17.2	35.7
1	25	26.6	18.4	37.1
1	26	27.7	19.2	38.1
1	27	28.7	20.5	39.2
1	28	29.8	21.2	40.6
1	29	30.8	22.0	41.6
1	30	31.9	22.7	42.7
1	31	32.9	23.5	44.0
1	32	34.0	24.9	44.9
1	33	35.0	25.7	46.4
1	34	36.1	26.4	47.2
1	35	37.2	27.9	48.8
1	36	38.2	28.7	49.6
1	37	39.3	29.5	51.0
1	38	40.4	30.4	52.0
1	39	41.4	31.2	53.1
1	40	42.5	32.8	54.5
1	41	43.6	33.6	55.4
1	42	44.7	34.5	56.6
1	43	45.7	35.3	58.0
1	44	46.8	36.1	58.9

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
25	45	106.3	86.2	128.0
25	46	108.2	89.8	130.2
25	47	110.0	91.3	132.1
25	48	111.9	92.9	133.7
26	0	35.5	23.2	52.0
26	1	36.9	24.9	53.7
26	2	38.4	25.9	55.4
26	3	39.9	26.9	56.5
26	4	41.4	27.9	58.6
26	5	42.8	29.7	60.1
26	6	44.3	30.7	61.8
26	7	45.9	31.8	63.5
26	8	47.4	32.8	65.4
26	9	48.9	34.9	66.6
26	10	50.4	36.0	68.5
26	11	52.0	37.1	70.4
26	12	53.5	38.2	72.2
26	13	55.1	40.4	73.7
26	14	56.7	41.5	75.7
26	15	58.2	42.7	77.6
26	16	59.8	43.8	79.2
26	17	61.4	45.0	80.8
26	18	63.0	46.2	82.7
26	19	64.7	48.6	84.2
26	20	66.3	49.8	85.4
26	21	67.9	51.1	87.3
26	22	69.6	52.3	89.5
26	23	71.2	55.0	91.6
26	24	72.9	54.8	93.9
26	25	74.6	57.5	94.6
26	26	76.3	58.8	96.2
26	27	78.0	60.1	98.6
26	28	79.7	61.5	101.0
26	29	81.4	62.8	102.2
26	30	83.1	64.1	103.6
26	31	84.9	67.1	106.2
26	32	86.6	68.5	108.0
26	33	88.4	69.9	109.4
26	34	90.1	71.3	111.8
26	35	91.9	72.7	113.5
26	36	93.7	74.1	115.1
26	37	95.5	75.6	117.5
26	38	97.3	78.9	119.2
26	39	99.2	80.4	121.2
26	40	101.0	81.9	123.1
26	41	102.9	83.4	125.0
26	42	104.7	84.9	127.1
26	43	106.6	86.4	128.9
26	44	108.5	90.1	130.6

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
1	45	47.9	37.0	60.1
1	46	49.0	38.7	61.3
1	47	50.1	39.6	62.5
1	48	51.2	40.5	63.6
2	0	2.0	0.3	7.1
2	1	3.0	0.7	7.4
2	2	4.1	1.2	9.0
2	3	5.1	1.6	10.6
2	4	6.1	2.3	12.1
2	5	7.1	3.0	13.7
2	6	8.1	3.7	15.3
2	7	9.2	4.4	16.9
2	8	10.2	5.3	17.8
2	9	11.2	6.0	18.6
2	10	12.2	6.8	20.1
2	11	13.3	7.7	21.7
2	12	14.3	8.5	22.9
2	13	15.4	9.4	24.0
2	14	16.4	9.8	25.1
2	15	17.4	10.4	26.8
2	16	18.5	11.4	27.5
2	17	19.5	12.4	28.8
2	18	20.6	13.5	30.4
2	19	21.6	14.1	31.2
2	20	22.7	14.8	32.6
2	21	23.7	16.0	33.8
2	22	24.8	17.2	35.0
2	23	25.8	17.9	36.1
2	24	26.9	18.1	37.1
2	25	27.9	19.4	38.5
2	26	29.0	20.7	39.7
2	27	30.0	21.4	40.6
2	28	31.1	22.2	42.0
2	29	32.2	23.6	43.4
2	30	33.2	24.4	44.4
2	31	34.3	25.1	45.7
2	32	35.4	25.9	46.6
2	33	36.5	26.7	48.0
2	34	37.5	28.2	48.9
2	35	38.6	29.0	50.3
2	36	39.7	29.9	51.2
2	37	40.8	30.7	52.8
2	38	41.9	31.5	53.7
2	39	43.0	32.3	54.9
2	40	44.0	34.0	56.2
2	41	45.1	34.8	57.1
2	42	46.2	35.7	58.6
2	43	47.3	36.5	59.7
2	44	48.4	37.4	60.8

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
26	45	110.4	89.5	132.4
26	46	112.3	93.2	135.0
26	47	114.2	94.8	137.0
26	48	116.2	96.4	138.7
27	0	37.4	24.5	54.5
27	1	38.9	26.2	55.9
27	2	40.4	27.3	57.4
27	3	42.0	28.3	59.7
27	4	43.5	29.3	60.8
27	5	45.0	31.2	63.0
27	6	46.5	32.3	64.7
27	7	48.1	33.3	66.1
27	8	49.6	35.4	67.8
27	9	51.2	36.5	69.7
27	10	52.8	37.6	71.7
27	11	54.4	38.8	73.4
27	12	56.0	41.0	75.0
27	13	57.6	42.2	77.2
27	14	59.2	43.3	78.6
27	15	60.8	44.5	80.6
27	16	62.4	45.7	82.3
27	17	64.1	46.9	83.7
27	18	65.7	49.4	85.3
27	19	67.4	50.7	87.3
27	20	69.1	51.9	89.5
27	21	70.8	53.2	91.6
27	22	72.5	55.9	93.9
27	23	74.2	55.8	94.6
27	24	75.9	58.5	96.2
27	25	77.6	59.9	98.6
27	26	79.4	61.2	101.0
27	27	81.1	62.6	102.5
27	28	82.9	63.9	103.8
27	29	84.6	65.3	106.2
27	30	86.4	68.4	108.3
27	31	88.2	69.8	109.6
27	32	90.0	71.2	111.8
27	33	91.9	72.7	113.8
27	34	93.7	74.1	115.4
27	35	95.5	75.6	118.0
27	36	97.4	77.1	119.8
27	37	99.3	80.5	121.8
27	38	101.2	82.0	123.7
27	39	103.1	83.5	125.9
27	40	105.0	85.1	127.6
27	41	106.9	86.6	129.4
27	42	108.8	88.2	132.0
27	43	110.8	89.8	133.7
27	44	112.7	91.4	135.3

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
2	45	49.5	38.2	61.8
2	46	50.6	40.0	63.0
2	47	51.7	40.9	64.2
2	48	52.8	41.8	65.4
3	0	3.1	0.7	8.9
3	1	4.1	1.2	9.1
3	2	5.1	1.7	10.6
3	3	6.2	2.3	12.1
3	4	7.2	3.0	13.7
3	5	8.2	3.6	15.3
3	6	9.2	4.4	16.9
3	7	10.3	5.1	18.3
3	8	11.3	6.1	18.8
3	9	12.4	6.9	20.2
3	10	13.4	7.7	21.8
3	11	14.5	8.6	23.4
3	12	15.5	9.5	24.1
3	13	16.5	10.2	25.3
3	14	17.6	10.5	26.9
3	15	18.6	11.5	28.2
3	16	19.7	12.5	29.2
3	17	20.8	13.6	30.4
3	18	21.8	14.3	31.8
3	19	22.9	15.0	32.7
3	20	23.9	15.7	34.2
3	21	25.0	16.8	35.2
3	22	26.1	18.1	36.5
3	23	27.1	18.8	37.7
3	24	28.2	19.6	39.1
3	25	29.3	20.9	40.2
3	26	30.4	21.6	41.3
3	27	31.4	22.4	42.7
3	28	32.5	23.2	43.6
3	29	33.6	24.6	44.9
3	30	34.7	25.4	46.2
3	31	35.8	26.2	47.2
3	32	36.8	27.0	48.6
3	33	37.9	27.8	49.5
3	34	39.0	29.3	51.0
3	35	40.1	30.2	52.0
3	36	41.2	31.0	53.2
3	37	42.3	31.8	54.5
3	38	43.4	32.6	55.4
3	39	44.5	34.3	57.0
3	40	45.6	35.2	58.0
3	41	46.7	36.0	59.0
3	42	47.8	36.9	60.2
3	43	48.9	37.8	61.5
3	44	50.0	38.6	62.6

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
27	45	114.7	95.2	137.8
27	46	116.7	94.6	140.1
27	47	118.7	98.5	142.1
27	48	120.7	100.2	144.2
28	0	39.5	25.9	57.0
28	1	41.0	27.7	58.8
28	2	42.6	28.7	60.7
28	3	44.1	30.6	62.5
28	4	45.7	30.8	63.8
28	5	47.3	32.8	65.9
28	6	48.8	33.9	67.5
28	7	50.4	35.0	69.1
28	8	52.0	37.1	71.0
28	9	53.6	38.2	73.0
28	10	55.2	39.4	74.4
28	11	56.9	41.7	76.4
28	12	58.5	41.7	77.9
28	13	60.2	44.1	80.0
28	14	61.8	45.3	81.5
28	15	63.5	46.5	83.4
28	16	65.2	47.7	85.3
28	17	66.9	50.3	87.3
28	18	68.6	51.6	89.5
28	19	70.3	52.8	91.6
28	20	72.0	54.1	93.9
28	21	73.7	55.5	94.6
28	22	75.5	56.8	96.2
28	23	77.3	59.6	98.6
28	24	79.0	61.0	101.0
28	25	80.8	62.4	102.8
28	26	82.6	63.7	103.9
28	27	84.4	65.1	106.2
28	28	86.3	66.5	108.8
28	29	88.1	68.0	110.3
28	30	89.9	71.1	112.2
28	31	91.8	72.6	114.7
28	32	93.7	74.1	116.4
28	33	95.6	75.6	118.3
28	34	97.5	77.1	120.4
28	35	99.4	78.6	121.9
28	36	101.3	80.1	124.2
28	37	103.3	83.7	126.0
28	38	105.2	85.3	128.5
28	39	107.2	86.9	130.6
28	40	109.2	88.5	132.4
28	41	111.2	90.1	135.0
28	42	113.2	91.7	137.0
28	43	115.2	95.6	138.7
28	44	117.3	95.0	140.7

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
3	45	51.2	40.5	63.8
3	46	52.3	41.4	65.0
3	47	53.4	42.2	66.1
3	48	54.5	43.1	67.3
4	0	4.1	1.7	9.5
4	1	5.2	1.8	10.8
4	2	6.2	2.4	12.2
4	3	7.2	2.9	13.7
4	4	8.3	3.6	15.3
4	5	9.3	4.5	16.9
4	6	10.4	5.2	18.5
4	7	11.4	5.9	19.5
4	8	12.5	6.9	20.5
4	9	13.5	7.8	21.8
4	10	14.6	8.7	23.4
4	11	15.6	9.6	24.6
4	12	16.7	10.3	25.7
4	13	17.8	10.9	26.9
4	14	18.8	11.6	28.6
4	15	19.9	12.6	29.3
4	16	21.0	13.7	30.7
4	17	22.0	14.8	32.2
4	18	23.1	15.1	33.1
4	19	24.2	15.8	34.5
4	20	25.3	17.0	35.7
4	21	26.3	18.3	37.1
4	22	27.4	19.0	38.1
4	23	28.5	19.8	39.2
4	24	29.6	20.5	40.6
4	25	30.7	21.9	41.8
4	26	31.8	22.6	42.8
4	27	32.8	23.4	44.2
4	28	33.9	24.9	45.6
4	29	35.0	25.7	46.5
4	30	36.1	26.5	48.0
4	31	37.2	27.3	48.8
4	32	38.3	28.1	50.3
4	33	39.4	29.7	51.2
4	34	40.5	30.5	52.8
4	35	41.6	31.3	53.7
4	36	42.8	32.2	55.2
4	37	43.9	33.0	56.2
4	38	45.0	34.7	57.4
4	39	46.1	35.6	58.6
4	40	47.2	36.4	59.8
4	41	48.3	37.3	60.9
4	42	49.5	38.2	62.5
4	43	50.6	40.0	63.5
4	44	51.7	40.9	64.7

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
28	45	119.3	99.0	143.0
28	46	121.4	98.4	145.4
28	47	123.5	102.5	147.9
28	48	125.6	104.2	149.8
29	0	41.7	28.1	59.8
29	1	43.2	29.1	61.4
29	2	44.8	30.2	63.4
29	3	46.4	31.3	65.4
29	4	48.0	33.3	67.2
29	5	49.6	34.4	68.5
29	6	51.2	35.5	70.7
29	7	52.8	36.6	72.3
29	8	54.5	38.8	74.1
29	9	56.1	40.0	75.9
29	10	57.8	41.2	77.8
29	11	59.5	42.4	79.5
29	12	61.2	44.8	81.4
29	13	62.9	46.0	83.3
29	14	64.6	47.3	85.3
29	15	66.3	48.6	87.3
29	16	68.0	51.2	89.5
29	17	69.8	51.1	91.6
29	18	71.5	53.8	93.9
29	19	73.3	55.1	94.6
29	20	75.1	56.5	96.2
29	21	76.9	57.8	98.6
29	22	78.7	60.7	101.0
29	23	80.5	62.1	103.3
29	24	82.4	63.5	104.7
29	25	84.2	65.0	106.4
29	26	86.1	66.4	109.0
29	27	87.9	67.8	111.1
29	28	89.8	69.3	112.8
29	29	91.7	72.6	114.9
29	30	93.7	74.1	116.9
29	31	95.6	75.6	119.2
29	32	97.5	77.2	121.2
29	33	99.5	78.7	123.1
29	34	101.5	80.3	125.0
29	35	103.5	81.8	127.3
29	36	105.5	83.4	129.1
29	37	107.5	87.1	131.7
29	38	109.5	88.8	133.7
29	39	111.6	90.4	135.3
29	40	113.7	92.1	138.1
29	41	115.7	93.8	140.4
29	42	117.8	95.5	142.2
29	43	120.0	99.6	144.2
29	44	122.1	99.0	146.3

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
4	45	52.9	41.8	66.0
4	46	54.0	42.7	67.3
4	47	55.1	43.6	68.4
4	48	56.3	44.5	69.4
5	0	5.2	2.3	11.9
5	1	6.3	2.5	12.7
5	2	7.3	2.9	13.9
5	3	8.4	3.7	15.3
5	4	9.4	4.3	16.9
5	5	10.5	5.2	18.5
5	6	11.5	6.0	20.1
5	7	12.6	6.8	21.2
5	8	13.7	7.6	21.9
5	9	14.7	8.5	23.4
5	10	15.8	9.4	25.1
5	11	16.9	10.4	26.4
5	12	17.9	11.0	27.0
5	13	19.0	11.7	28.6
5	14	20.1	12.4	30.0
5	15	21.2	13.4	31.2
5	16	22.2	14.6	32.3
5	17	23.3	15.7	33.8
5	18	24.4	16.0	35.0
5	19	25.5	17.2	36.1
5	20	26.6	17.9	37.5
5	21	27.7	19.2	38.5
5	22	28.8	20.0	39.9
5	23	29.9	20.7	41.2
5	24	31.0	22.1	42.3
5	25	32.1	22.9	43.4
5	26	33.2	23.7	44.9
5	27	34.3	24.4	45.8
5	28	35.4	25.9	47.2
5	29	36.5	26.7	48.5
5	30	37.6	27.6	49.5
5	31	38.7	28.4	51.0
5	32	39.9	29.2	52.0
5	33	41.0	30.8	53.3
5	34	42.1	31.7	54.5
5	35	43.2	32.5	55.7
5	36	44.4	33.4	57.0
5	37	45.5	35.1	58.0
5	38	46.6	36.0	59.3
5	39	47.7	36.8	60.7
5	40	48.9	37.7	61.8
5	41	50.0	38.6	63.0
5	42	51.2	39.5	64.2
5	43	52.3	41.4	65.4
5	44	53.5	42.3	66.6

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
29	45	124.2	103.1	148.9
29	46	126.4	104.9	151.7
29	47	128.6	106.7	153.5
29	48	130.8	108.6	155.9
30	0	43.9	29.6	62.6
30	1	45.5	30.7	64.5
30	2	47.1	31.8	66.6
30	3	48.7	33.8	68.0
30	4	50.4	34.9	70.1
30	5	52.0	36.1	72.2
30	6	53.7	38.3	74.0
30	7	55.4	39.5	75.8
30	8	57.1	40.7	77.6
30	9	58.8	41.9	79.5
30	10	60.5	43.1	81.4
30	11	62.2	45.6	83.3
30	12	64.0	46.8	85.3
30	13	65.7	48.1	87.3
30	14	67.5	49.4	89.5
30	15	69.3	50.7	91.6
30	16	71.0	52.0	93.9
30	17	72.9	54.8	94.6
30	18	74.7	56.1	96.2
30	19	76.5	57.5	98.6
30	20	78.3	58.9	101.0
30	21	80.2	60.3	103.6
30	22	82.1	63.3	105.0
30	23	84.0	64.8	106.4
30	24	85.9	66.2	109.0
30	25	87.8	67.7	111.4
30	26	89.7	69.2	112.9
30	27	91.7	70.7	115.1
30	28	93.6	74.1	117.5
30	29	95.6	75.6	119.2
30	30	97.6	77.2	121.8
30	31	99.6	78.8	124.2
30	32	101.6	80.4	126.0
30	33	103.7	82.0	128.2
30	34	105.7	83.6	130.6
30	35	107.8	87.4	132.1
30	36	109.9	89.1	135.0
30	37	112.0	88.6	137.0
30	38	114.2	92.5	138.7
30	39	116.3	94.3	141.6
30	40	118.5	96.0	144.0
30	41	120.6	97.8	145.9
30	42	122.8	99.6	148.2
30	43	125.1	101.4	150.3
30	44	127.3	105.7	152.6

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
5	45	54.6	43.2	67.8
5	46	55.8	44.1	69.0
5	47	56.9	45.0	70.4
5	48	58.1	45.9	71.7
6	0	6.3	2.9	13.7
6	1	7.4	3.2	14.4
6	2	8.4	3.7	15.3
6	3	9.5	4.4	16.9
6	4	10.6	5.3	18.5
6	5	11.6	6.0	20.1
6	6	12.7	6.8	21.7
6	7	13.8	7.7	22.2
6	8	14.9	8.6	23.6
6	9	16.0	9.5	25.1
6	10	17.0	10.5	26.8
6	11	18.1	11.1	27.5
6	12	19.2	11.8	28.8
6	13	20.3	12.5	30.4
6	14	21.4	13.6	31.8
6	15	22.5	14.7	32.6
6	16	23.6	15.9	34.2
6	17	24.7	16.6	35.2
6	18	25.8	17.4	36.5
6	19	26.9	18.1	37.8
6	20	28.0	19.4	39.1
6	21	29.1	20.2	40.2
6	22	30.2	20.9	41.6
6	23	31.3	22.3	42.7
6	24	32.4	23.1	44.2
6	25	33.5	23.9	45.2
6	26	34.7	24.7	46.5
6	27	35.8	26.2	47.9
6	28	36.9	27.0	48.8
6	29	38.0	27.9	50.3
6	30	39.2	28.7	51.2
6	31	40.3	29.5	52.8
6	32	41.4	31.1	53.8
6	33	42.6	32.0	55.4
6	34	43.7	32.9	56.2
6	35	44.8	33.7	57.6
6	36	46.0	35.5	58.9
6	37	47.1	36.4	60.1
6	38	48.3	37.2	61.3
6	39	49.4	38.1	62.5
6	40	50.6	39.0	63.6
6	41	51.7	39.9	64.8
6	42	52.9	40.8	66.1
6	43	54.1	42.8	67.5
6	44	55.2	43.7	68.7

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
30	45	129.5	107.5	155.5
30	46	131.8	109.4	157.6
30	47	134.1	111.3	159.8
30	48	136.4	113.2	162.7
31	0	46.2	31.1	65.5
31	1	47.9	32.3	67.5
31	2	49.5	34.4	69.3
31	3	51.2	35.5	71.7
31	4	52.9	36.7	73.7
31	5	54.6	37.9	75.6
31	6	56.3	39.1	77.6
31	7	58.1	41.4	79.5
31	8	59.8	42.6	81.4
31	9	61.6	43.9	83.3
31	10	63.3	46.4	85.3
31	11	65.1	47.7	87.3
31	12	66.9	49.0	89.5
31	13	68.7	50.3	91.6
31	14	70.5	51.7	93.9
31	15	72.4	53.0	94.6
31	16	74.2	55.8	96.2
31	17	76.1	57.2	98.5
31	18	78.0	58.6	101.0
31	19	79.9	60.1	103.6
31	20	81.8	61.5	105.7
31	21	83.7	63.0	107.0
31	22	85.7	66.1	109.1
31	23	87.6	67.6	111.8
31	24	89.6	69.1	113.8
31	25	91.6	70.7	115.4
31	26	93.6	72.2	118.0
31	27	95.6	73.8	120.4
31	28	97.7	75.4	121.9
31	29	99.7	78.9	124.7
31	30	101.8	80.5	127.1
31	31	103.9	82.2	128.9
31	32	106.0	83.9	131.5
31	33	108.2	85.6	133.7
31	34	110.3	87.3	135.3
31	35	112.5	89.0	138.7
31	36	114.7	93.0	140.4
31	37	116.9	94.7	142.7
31	38	119.1	96.5	145.4
31	39	121.4	98.4	147.9
31	40	123.6	100.2	150.0
31	41	125.9	102.1	152.3
31	42	128.2	103.9	154.7
31	43	130.5	105.8	156.6
31	44	132.9	110.3	159.8

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
6	45	56.4	44.6	69.8
6	46	57.6	45.5	71.0
6	47	58.7	46.5	72.4
6	48	59.9	47.4	73.7
7	0	7.5	3.6	14.9
7	1	8.5	3.9	15.6
7	2	9.6	4.4	16.9
7	3	10.7	5.1	18.5
7	4	11.8	6.1	20.1
7	5	12.8	6.9	21.7
7	6	13.9	7.8	22.9
7	7	15.0	8.7	24.0
7	8	16.1	9.6	25.3
7	9	17.2	10.6	26.9
7	10	18.3	11.6	28.2
7	11	19.4	12.3	29.3
7	12	20.5	12.6	30.5
7	13	21.6	13.7	31.9
7	14	22.7	14.9	33.1
7	15	23.8	15.6	34.5
7	16	24.9	16.8	35.7
7	17	26.0	17.5	37.1
7	18	27.1	18.3	38.1
7	19	28.3	19.6	39.7
7	20	29.4	20.4	40.6
7	21	30.5	21.2	42.0
7	22	31.6	21.9	43.4
7	23	32.8	23.4	44.4
7	24	33.9	24.2	45.7
7	25	35.0	25.0	47.2
7	26	36.2	26.5	48.3
7	27	37.3	27.3	49.5
7	28	38.4	28.2	51.0
7	29	39.6	29.0	52.0
7	30	40.7	30.6	53.5
7	31	41.9	31.5	54.5
7	32	43.0	32.4	55.9
7	33	44.2	33.2	57.1
7	34	45.3	34.1	58.3
7	35	46.5	35.0	59.7
7	36	47.7	36.8	60.8
7	37	48.8	37.7	61.9
7	38	50.0	38.6	63.4
7	39	51.2	39.5	64.7
7	40	52.3	40.4	66.0
7	41	53.5	41.3	67.3
7	42	54.7	43.3	68.5
7	43	55.9	44.2	69.7
7	44	57.1	45.1	70.8

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
31	45	135.3	112.3	162.4
31	46	137.7	114.3	163.9
31	47	140.1	116.3	167.8
31	48	142.5	118.3	168.8
32	0	48.7	32.8	69.0
32	1	50.4	33.9	70.9
32	2	52.1	36.1	73.0
32	3	53.8	37.3	75.0
32	4	55.6	38.5	77.2
32	5	57.3	39.7	79.1
32	6	59.1	42.1	81.2
32	7	60.9	43.4	83.3
32	8	62.7	44.7	85.3
32	9	64.5	46.0	87.3
32	10	66.3	48.6	89.5
32	11	68.2	49.9	91.6
32	12	70.0	51.3	93.9
32	13	71.9	52.6	94.6
32	14	73.8	54.0	96.2
32	15	75.7	56.9	98.5
32	16	77.6	58.4	101.0
32	17	79.5	59.8	103.6
32	18	81.5	61.3	106.2
32	19	83.5	62.8	108.0
32	20	85.4	64.3	109.4
32	21	87.5	65.8	111.8
32	22	89.5	69.0	114.7
32	23	91.5	70.6	116.4
32	24	93.6	72.2	118.3
32	25	95.7	73.8	121.2
32	26	97.8	75.4	123.1
32	27	99.9	77.0	125.1
32	28	102.0	78.7	127.6
32	29	104.2	82.4	130.5
32	30	106.3	84.1	132.1
32	31	108.5	85.8	135.0
32	32	110.7	87.6	137.0
32	33	113.0	89.4	139.5
32	34	115.2	91.1	142.1
32	35	117.5	95.2	144.2
32	36	119.8	94.8	146.2
32	37	122.1	99.0	148.9
32	38	124.5	100.9	151.7
32	39	126.8	102.8	154.0
32	40	129.2	104.7	156.2
32	41	131.6	106.7	159.5
32	42	134.0	111.3	161.3
32	43	136.5	113.3	163.7
32	44	139.0	115.4	167.2

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
7	45	58.3	46.1	72.2
7	46	59.4	47.0	73.4
7	47	60.6	48.0	74.4
7	48	61.8	48.9	75.9
8	0	8.6	4.5	16.9
8	1	9.7	4.5	17.2
8	2	10.8	5.2	18.6
8	3	11.9	5.9	20.2
8	4	13.0	6.7	21.8
8	5	14.1	7.8	23.4
8	6	15.2	8.7	24.6
8	7	16.3	9.7	25.7
8	8	17.4	10.4	26.9
8	9	18.5	11.4	28.6
8	10	19.6	12.4	30.0
8	11	20.7	13.1	30.7
8	12	21.8	13.9	32.3
8	13	22.9	14.6	33.8
8	14	24.1	15.7	35.0
8	15	25.2	17.0	36.1
8	16	26.3	17.7	37.7
8	17	27.4	18.5	38.5
8	18	28.6	19.2	40.2
8	19	29.7	20.6	41.3
8	20	30.8	21.4	42.7
8	21	32.0	22.2	44.0
8	22	33.1	23.6	44.9
8	23	34.3	24.4	46.5
8	24	35.4	25.2	47.8
8	25	36.6	26.1	48.8
8	26	37.7	27.6	50.3
8	27	38.9	28.5	51.2
8	28	40.0	29.3	52.8
8	29	41.2	30.2	53.8
8	30	42.3	31.8	55.4
8	31	43.5	32.7	56.4
8	32	44.7	33.6	58.0
8	33	45.9	34.5	59.0
8	34	47.0	35.4	60.2
8	35	48.2	36.3	61.6
8	36	49.4	38.1	63.0
8	37	50.6	39.0	64.2
8	38	51.8	39.9	65.4
8	39	53.0	40.9	66.6
8	40	54.1	41.8	67.8
8	41	55.3	43.8	69.1
8	42	56.5	44.7	70.4
8	43	57.7	45.7	71.7
8	44	59.0	46.6	73.0

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
32	45	141.5	117.4	168.3
32	46	144.0	119.5	172.4
32	47	146.6	121.7	174.4
32	48	149.1	123.8	177.0
33	0	51.2	34.5	72.3
33	1	53.0	36.7	74.3
33	2	54.8	38.0	76.4
33	3	56.5	39.2	78.6
33	4	58.3	40.5	80.6
33	5	60.2	42.9	83.0
33	6	62.0	44.2	85.1
33	7	63.8	45.5	87.2
33	8	65.7	46.8	89.2
33	9	67.6	49.5	91.6
33	10	69.5	50.9	93.9
33	11	71.4	52.3	94.6
33	12	73.3	53.7	96.2
33	13	75.2	55.1	98.5
33	14	77.2	58.1	101.0
33	15	79.2	59.5	103.6
33	16	81.2	61.0	106.2
33	17	83.2	62.6	108.3
33	18	85.2	64.1	110.3
33	19	87.3	65.6	112.2
33	20	89.3	67.2	114.9
33	21	91.4	70.5	117.5
33	22	93.6	72.2	119.2
33	23	95.7	73.8	121.8
33	24	97.8	75.5	124.2
33	25	100.0	77.2	126.0
33	26	102.2	78.8	128.9
33	27	104.4	80.6	130.6
33	28	106.6	84.4	133.7
33	29	108.9	86.1	135.3
33	30	111.2	88.0	138.7
33	31	113.5	89.8	140.5
33	32	115.8	91.6	143.0
33	33	118.2	95.8	145.9
33	34	120.5	95.3	148.2
33	35	122.9	99.6	150.9
33	36	125.4	101.6	153.0
33	37	127.8	103.6	155.9
33	38	130.3	105.6	158.7
33	39	132.8	107.6	160.7
33	40	135.3	109.7	163.7
33	41	137.8	111.7	167.2
33	42	140.4	113.8	168.3
33	43	143.0	118.7	172.4
33	44	145.6	120.9	174.4

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
8	45	60.2	47.6	74.3
8	46	61.4	48.5	75.7
8	47	62.6	49.5	77.0
8	48	63.8	50.5	77.9
9	0	9.8	4.7	18.4
9	1	10.9	5.6	19.5
9	2	12.0	6.0	20.3
9	3	13.1	6.8	21.8
9	4	14.2	7.6	23.4
9	5	15.3	8.5	25.1
9	6	16.4	9.5	26.4
9	7	17.6	10.5	27.0
9	8	18.7	11.5	28.6
9	9	19.8	12.6	30.4
9	10	20.9	13.3	31.2
9	11	22.0	14.0	32.6
9	12	23.2	14.7	34.2
9	13	24.3	15.9	35.2
9	14	25.4	17.1	36.5
9	15	26.6	17.9	38.1
9	16	27.7	18.7	39.2
9	17	28.9	19.5	40.6
9	18	30.0	20.8	41.8
9	19	31.2	21.6	43.2
9	20	32.3	22.4	44.4
9	21	33.5	23.2	45.7
9	22	34.6	24.7	47.2
9	23	35.8	25.5	48.0
9	24	37.0	26.3	49.5
9	25	38.1	27.9	51.0
9	26	39.3	28.8	52.0
9	27	40.5	29.6	53.7
9	28	41.6	30.5	54.5
9	29	42.8	32.2	56.1
9	30	44.0	33.1	57.1
9	31	45.2	34.0	58.6
9	32	46.4	34.9	59.8
9	33	47.6	35.8	61.2
9	34	48.8	36.7	62.5
9	35	50.0	38.6	63.6
9	36	51.2	39.5	64.7
9	37	52.4	40.4	66.1
9	38	53.6	41.3	67.5
9	39	54.8	42.3	69.0
9	40	56.0	44.3	70.3
9	41	57.2	45.3	71.5
9	42	58.4	46.2	72.5
9	43	59.7	47.2	74.0
9	44	60.9	48.2	75.4

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
33	45	148.3	123.1	177.0
33	46	150.9	125.3	180.8
33	47	153.7	127.5	182.1
33	48	156.4	129.8	186.4
34	0	53.9	37.4	75.8
34	1	55.7	38.6	77.9
34	2	57.6	39.9	80.0
34	3	59.4	41.2	82.2
34	4	61.3	43.7	84.6
34	5	63.1	45.0	86.9
34	6	65.0	46.4	89.2
34	7	67.0	47.7	91.5
34	8	68.9	50.5	93.8
34	9	70.8	50.5	94.6
34	10	72.8	51.9	96.2
34	11	74.8	54.8	98.5
34	12	76.8	56.2	101.0
34	13	78.8	57.7	103.6
34	14	80.8	60.8	106.2
34	15	82.9	62.3	108.8
34	16	85.0	63.9	111.1
34	17	87.1	65.5	112.8
34	18	89.2	67.1	115.1
34	19	91.4	68.7	118.0
34	20	93.5	70.3	120.4
34	21	95.7	73.8	121.9
34	22	97.9	75.5	125.0
34	23	100.2	77.3	127.3
34	24	102.4	79.0	129.4
34	25	104.7	80.8	132.1
34	26	107.0	84.6	135.0
34	27	109.3	84.3	137.0
34	28	111.7	86.1	139.5
34	29	114.0	90.2	142.2
34	30	116.4	92.1	145.0
34	31	118.9	94.0	147.9
34	32	121.3	96.0	150.0
34	33	123.8	97.9	152.6
34	34	126.3	102.4	155.5
34	35	128.8	101.9	158.2
34	36	131.4	106.5	160.1
34	37	134.0	108.6	163.7
34	38	136.6	110.7	166.5
34	39	139.2	112.9	168.0
34	40	141.9	115.0	172.4
34	41	144.6	117.2	174.4
34	42	147.4	119.4	177.0
34	43	150.1	124.6	180.8
34	44	152.9	126.9	182.1

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
9	45	62.1	49.1	76.4
9	46	63.4	51.4	77.8
9	47	64.6	51.1	79.3
9	48	65.8	53.4	80.6
10	0	11.0	5.7	20.1
10	1	12.1	6.5	21.1
10	2	13.2	7.1	22.0
10	3	14.4	7.7	23.6
10	4	15.5	8.6	25.1
10	5	16.6	9.6	26.8
10	6	17.7	10.6	27.5
10	7	18.9	11.6	28.8
10	8	20.0	12.7	30.4
10	9	21.1	13.4	31.8
10	10	22.3	14.1	33.1
10	11	23.4	14.9	34.5
10	12	24.6	16.1	35.7
10	13	25.7	16.8	37.1
10	14	26.9	18.1	38.5
10	15	28.0	18.9	39.7
10	16	29.2	19.7	41.2
10	17	30.3	21.0	42.3
10	18	31.5	21.8	43.4
10	19	32.7	23.3	44.9
10	20	33.8	23.5	46.5
10	21	35.0	25.0	47.5
10	22	36.2	25.8	48.8
10	23	37.4	26.6	50.3
10	24	38.6	28.2	51.2
10	25	39.7	29.1	52.8
10	26	40.9	30.0	54.1
10	27	42.1	30.9	55.4
10	28	43.3	31.7	56.8
10	29	44.5	33.5	58.0
10	30	45.7	34.4	59.1
10	31	46.9	35.3	60.7
10	32	48.1	36.2	61.8
10	33	49.3	37.1	63.0
10	34	50.6	39.0	64.5
10	35	51.8	40.0	66.0
10	36	53.0	40.9	67.3
10	37	54.2	41.8	68.5
10	38	55.5	42.8	69.7
10	39	56.7	43.7	71.0
10	40	57.9	45.8	72.3
10	41	59.2	46.8	73.7
10	42	60.4	47.8	75.0
10	43	61.7	48.8	76.3
10	44	62.9	49.8	77.6

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
34	45	155.7	129.3	187.0
34	46	158.6	131.6	188.5
34	47	161.5	134.0	192.5
34	48	164.4	136.5	194.9
35	0	56.8	39.4	79.5
35	1	58.6	40.7	81.5
35	2	60.5	42.0	83.7
35	3	62.4	43.3	86.2
35	4	64.4	44.6	88.6
35	5	66.3	47.3	90.4
35	6	68.3	48.7	93.0
35	7	70.3	50.1	94.6
35	8	72.3	51.5	96.4
35	9	74.3	53.0	98.8
35	10	76.3	55.9	101.2
35	11	78.4	57.4	103.6
35	12	80.5	59.0	106.2
35	13	82.6	60.5	109.0
35	14	84.7	62.1	111.4
35	15	86.9	65.3	113.8
35	16	89.1	67.0	115.4
35	17	91.3	68.6	118.3
35	18	93.5	70.3	121.2
35	19	95.7	72.0	123.1
35	20	98.0	73.7	126.0
35	21	100.3	75.4	128.2
35	22	102.6	79.2	130.6
35	23	105.0	81.0	133.7
35	24	107.3	82.8	135.3
35	25	109.7	84.7	138.7
35	26	112.2	86.5	140.7
35	27	114.6	88.4	144.0
35	28	117.1	92.6	146.2
35	29	119.6	94.6	148.9
35	30	122.2	96.6	152.0
35	31	124.7	98.7	154.7
35	32	127.3	100.7	157.0
35	33	129.9	102.8	159.9
35	34	132.6	107.5	163.6
35	35	135.3	109.7	165.7
35	36	138.0	111.9	168.0
35	37	140.8	114.1	172.4
35	38	143.6	116.4	174.4
35	39	146.4	118.6	177.0
35	40	149.2	121.0	181.4
35	41	152.1	123.3	182.9
35	42	155.0	125.7	187.3
35	43	158.0	128.1	190.0
35	44	161.0	130.5	192.8

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
10	45	64.2	50.7	79.2
10	46	65.4	53.0	80.0
10	47	66.7	54.0	81.4
10	48	67.9	55.1	83.2
11	0	12.2	6.8	21.4
11	1	13.4	7.4	22.3
11	2	14.5	7.8	23.6
11	3	15.6	8.7	25.3
11	4	16.8	9.7	26.8
11	5	17.9	10.7	28.2
11	6	19.1	11.4	29.3
11	7	20.2	12.4	30.7
11	8	21.4	13.6	32.3
11	9	22.5	14.3	33.8
11	10	23.7	15.5	35.0
11	11	24.8	15.8	36.1
11	12	26.0	17.0	37.7
11	13	27.2	18.3	39.1
11	14	28.3	19.1	40.2
11	15	29.5	19.9	41.6
11	16	30.7	20.7	42.7
11	17	31.9	22.1	44.2
11	18	33.0	23.6	45.7
11	19	34.2	23.7	46.8
11	20	35.4	25.2	48.0
11	21	36.6	26.1	49.5
11	22	37.8	26.9	51.0
11	23	39.0	28.6	52.0
11	24	40.2	29.4	53.7
11	25	41.4	30.3	54.6
11	26	42.6	31.2	56.2
11	27	43.8	32.1	57.4
11	28	45.0	33.9	58.9
11	29	46.3	34.8	60.1
11	30	47.5	35.7	61.3
11	31	48.7	36.6	62.6
11	32	49.9	38.5	64.2
11	33	51.2	39.5	65.4
11	34	52.4	40.4	66.6
11	35	53.7	41.4	67.8
11	36	54.9	42.4	69.2
11	37	56.1	43.3	70.7
11	38	57.4	45.4	72.2
11	39	58.6	45.2	73.4
11	40	59.9	47.4	74.5
11	41	61.2	48.4	75.9
11	42	62.4	49.4	77.6
11	43	63.7	50.4	78.6
11	44	65.0	51.4	80.0

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
35	45	164.0	136.1	195.8
35	46	167.1	138.7	198.9
35	47	170.2	141.3	202.9
35	48	173.3	143.9	205.9
36	0	59.8	41.4	83.4
36	1	61.7	42.8	85.4
36	2	63.7	44.1	87.8
36	3	65.7	45.5	90.3
36	4	67.7	46.9	92.7
36	5	69.7	49.7	95.3
36	6	71.7	51.1	97.5
36	7	73.8	52.6	99.5
36	8	75.9	54.1	101.4
36	9	78.0	55.6	103.8
36	10	80.1	58.7	106.4
36	11	82.3	60.3	109.1
36	12	84.5	61.9	111.8
36	13	86.7	63.5	114.7
36	14	88.9	66.9	116.4
36	15	91.2	68.6	119.2
36	16	93.5	70.3	121.8
36	17	95.8	72.0	124.2
36	18	98.1	73.8	127.1
36	19	100.5	75.5	129.1
36	20	102.9	77.3	132.1
36	21	105.3	81.2	135.0
36	22	107.7	83.1	137.0
36	23	110.2	85.0	140.4
36	24	112.7	87.0	142.7
36	25	115.2	88.9	145.4
36	26	117.8	93.2	148.2
36	27	120.4	95.2	151.7
36	28	123.0	94.9	154.0
36	29	125.7	99.4	156.6
36	30	128.4	101.6	159.8
36	31	131.1	103.7	163.1
36	32	133.9	105.9	165.2
36	33	136.7	110.8	168.0
36	34	139.5	110.4	172.4
36	35	142.4	115.4	174.4
36	36	145.3	117.8	177.0
36	37	148.3	120.2	181.9
36	38	151.3	122.6	183.1
36	39	154.3	125.1	187.3
36	40	157.3	127.5	190.0
36	41	160.5	130.1	193.1
36	42	163.6	135.8	197.7
36	43	166.8	138.4	200.4
36	44	170.0	141.1	203.5

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
11	45	66.3	52.4	81.4
11	46	67.5	54.7	83.0
11	47	68.8	55.8	83.7
11	48	70.1	56.8	85.3
12	0	13.5	7.8	23.4
12	1	14.6	8.2	24.6
12	2	15.8	8.8	25.7
12	3	16.9	9.4	27.0
12	4	18.1	10.4	28.6
12	5	19.3	11.5	30.0
12	6	20.4	12.6	31.2
12	7	21.6	13.7	32.6
12	8	22.8	14.9	34.2
12	9	23.9	15.7	35.2
12	10	25.1	15.9	36.5
12	11	26.3	17.2	38.1
12	12	27.5	18.0	39.2
12	13	28.6	19.3	40.6
12	14	29.8	20.1	42.0
12	15	31.0	21.5	43.4
12	16	32.2	22.3	44.9
12	17	33.4	23.2	46.2
12	18	34.6	24.7	47.2
12	19	35.8	24.8	48.8
12	20	37.0	26.4	50.3
12	21	38.2	27.3	51.2
12	22	39.5	28.9	52.8
12	23	40.7	29.8	54.4
12	24	41.9	30.7	55.4
12	25	43.1	31.6	57.0
12	26	44.3	32.5	58.0
12	27	45.6	33.4	59.7
12	28	46.8	35.2	60.8
12	29	48.1	36.1	62.5
12	30	49.3	37.1	63.6
12	31	50.6	38.0	64.7
12	32	51.8	40.0	66.1
12	33	53.1	40.9	67.7
12	34	54.3	41.9	69.0
12	35	55.6	42.9	70.4
12	36	56.8	43.9	71.7
12	37	58.1	44.8	73.0
12	38	59.4	47.0	74.4
12	39	60.7	48.0	75.8
12	40	62.0	49.0	77.2
12	41	63.2	50.0	78.6
12	42	64.5	51.0	79.5
12	43	65.8	52.1	81.4
12	44	67.1	53.1	82.7

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
36	45	173.3	143.8	206.2
36	46	176.6	146.6	210.2
36	47	179.9	149.4	213.8
36	48	183.3	152.2	217.5
37	0	62.9	43.6	87.4
37	1	65.0	45.0	89.6
37	2	67.0	46.5	92.0
37	3	69.1	47.9	95.6
37	4	71.2	50.7	98.3
37	5	73.3	52.2	100.1
37	6	75.4	53.8	102.6
37	7	77.6	55.3	104.5
37	8	79.8	56.9	107.0
37	9	82.0	60.0	109.4
37	10	84.2	61.7	112.2
37	11	86.5	63.3	114.9
37	12	88.8	65.0	117.5
37	13	91.1	66.7	120.2
37	14	93.4	70.3	121.9
37	15	95.8	72.0	125.0
37	16	98.2	73.8	127.6
37	17	100.6	75.7	130.6
37	18	103.1	77.5	133.7
37	19	105.6	79.4	135.3
37	20	108.1	83.4	138.7
37	21	110.7	83.2	142.1
37	22	113.3	87.4	144.2
37	23	115.9	89.4	147.9
37	24	118.6	91.5	150.0
37	25	121.3	93.6	152.6
37	26	124.0	95.7	155.9
37	27	126.8	97.8	159.5
37	28	129.6	102.5	162.7
37	29	132.4	104.8	164.6
37	30	135.3	107.0	168.0
37	31	138.2	109.3	172.4
37	32	141.2	111.7	174.4
37	33	144.2	114.1	177.0
37	34	147.3	116.5	181.9
37	35	150.3	118.9	184.2
37	36	153.5	124.4	187.3
37	37	156.7	127.0	191.9
37	38	159.9	129.6	194.0
37	39	163.1	132.2	198.0
37	40	166.5	134.9	200.4
37	41	169.8	137.6	205.3
37	42	173.2	140.4	209.3
37	43	176.7	146.7	212.3
37	44	180.2	149.6	215.7

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
12	45	68.4	54.1	83.7
12	46	69.7	56.5	85.3
12	47	71.0	57.6	86.9
12	48	72.4	58.6	87.7
13	0	14.8	8.5	25.1
13	1	16.0	9.2	26.4
13	2	17.1	9.9	27.4
13	3	18.3	10.5	28.8
13	4	19.5	11.6	30.4
13	5	20.6	12.7	31.8
13	6	21.8	13.4	33.1
13	7	23.0	14.6	34.5
13	8	24.2	15.8	35.7
13	9	25.4	16.6	37.1
13	10	26.6	17.4	38.5
13	11	27.8	18.2	39.9
13	12	29.0	19.5	41.3
13	13	30.2	20.3	42.7
13	14	31.4	21.8	44.2
13	15	32.6	22.6	45.6
13	16	33.8	23.4	46.6
13	17	35.0	25.0	48.0
13	18	36.2	25.8	49.5
13	19	37.5	26.7	51.0
13	20	38.7	27.6	52.0
13	21	39.9	28.5	53.7
13	22	41.2	30.1	54.7
13	23	42.4	31.1	56.2
13	24	43.6	32.0	57.6
13	25	44.9	32.9	58.9
13	26	46.1	34.7	60.2
13	27	47.4	35.6	61.6
13	28	48.6	36.6	63.0
13	29	49.9	37.5	64.4
13	30	51.2	38.5	66.0
13	31	52.5	39.4	67.3
13	32	53.7	41.4	68.5
13	33	55.0	42.4	69.7
13	34	56.3	43.4	71.0
13	35	57.6	44.4	72.4
13	36	58.9	45.4	74.0
13	37	60.2	46.4	75.7
13	38	61.5	48.6	76.9
13	39	62.8	49.6	77.9
13	40	64.1	50.7	79.5
13	41	65.4	51.7	81.2
13	42	66.7	52.8	82.3
13	43	68.0	53.8	83.4
13	44	69.3	54.9	85.3

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
37	45	183.7	152.5	219.3
37	46	187.3	155.5	222.7
37	47	191.0	158.5	227.0
37	48	194.7	161.6	229.7
38	0	66.3	46.0	91.7
38	1	68.4	47.5	96.2
38	2	70.6	48.9	98.5
38	3	72.7	51.9	101.0
38	4	74.9	53.4	102.9
38	5	77.1	55.0	105.7
38	6	79.4	56.6	107.7
38	7	81.6	58.2	110.3
38	8	83.9	59.8	112.8
38	9	86.2	63.2	115.4
38	10	88.6	64.9	118.3
38	11	91.0	66.6	121.0
38	12	93.4	68.4	123.1
38	13	95.8	70.2	126.0
38	14	98.3	73.9	128.9
38	15	100.8	75.8	132.1
38	16	103.4	77.7	135.0
38	17	105.9	79.7	137.0
38	18	108.6	81.6	140.4
38	19	111.2	83.6	143.0
38	20	113.9	85.6	146.2
38	21	116.6	90.0	148.9
38	22	119.4	92.1	152.3
38	23	122.2	94.3	155.5
38	24	125.0	96.5	158.7
38	25	127.9	98.7	161.3
38	26	130.8	103.5	163.9
38	27	133.8	105.9	168.0
38	28	136.8	105.6	172.4
38	29	139.9	110.7	174.4
38	30	143.0	113.1	177.0
38	31	146.2	115.6	181.9
38	32	149.4	118.1	185.4
38	33	152.6	120.7	187.3
38	34	155.9	123.3	192.2
38	35	159.2	126.0	194.9
38	36	162.6	131.8	198.9
38	37	166.1	134.6	203.5
38	38	169.6	137.5	206.2
38	39	173.2	140.4	209.3
38	40	176.8	143.3	213.8
38	41	180.4	146.3	218.1
38	42	184.2	149.3	221.8
38	43	188.0	152.3	226.4
38	44	191.8	159.2	229.7

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
13	45	70.7	55.9	86.7
13	46	72.0	58.4	87.4
13	47	73.3	59.4	89.5
13	48	74.7	60.5	90.8
14	0	16.1	9.3	26.8
14	1	17.3	10.3	28.2
14	2	18.5	11.0	29.2
14	3	19.7	11.7	30.7
14	4	20.9	12.4	32.3
14	5	22.1	13.6	33.7
14	6	23.3	14.8	35.0
14	7	24.5	16.0	36.1
14	8	25.7	16.8	37.7
14	9	26.9	17.6	39.1
14	10	28.1	18.4	40.6
14	11	29.3	19.7	41.8
14	12	30.5	20.6	43.4
14	13	31.7	22.0	44.4
14	14	33.0	22.9	45.8
14	15	34.2	23.7	47.2
14	16	35.4	24.6	48.8
14	17	36.7	26.1	50.3
14	18	37.9	27.0	51.2
14	19	39.1	27.9	52.8
14	20	40.4	28.8	54.5
14	21	41.6	30.5	55.4
14	22	42.9	31.4	57.1
14	23	44.2	32.4	58.6
14	24	45.4	33.3	59.8
14	25	46.7	35.1	61.3
14	26	48.0	36.1	62.5
14	27	49.3	37.0	64.0
14	28	50.5	38.0	65.4
14	29	51.8	39.0	66.6
14	30	53.1	41.0	67.9
14	31	54.4	42.0	69.6
14	32	55.7	43.0	70.9
14	33	57.0	44.0	72.3
14	34	58.3	45.0	73.7
14	35	59.6	46.0	75.0
14	36	60.9	47.0	76.4
14	37	62.3	49.3	77.8
14	38	63.6	50.3	79.5
14	39	64.9	51.4	80.8
14	40	66.3	52.4	82.1
14	41	67.6	53.5	83.3
14	42	68.9	54.5	85.3
14	43	70.3	55.6	86.3
14	44	71.6	56.7	87.4

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
38	45	195.7	162.4	234.0
38	46	199.7	165.7	238.0
38	47	203.7	169.1	243.1
38	48	207.7	172.4	245.9
39	0	70.0	48.5	98.5
39	1	72.2	50.0	101.1
39	2	74.4	53.0	103.6
39	3	76.7	54.6	106.2
39	4	78.9	56.3	108.8
39	5	81.3	57.9	111.4
39	6	83.6	59.6	113.8
39	7	86.0	61.3	115.5
39	8	88.4	63.0	119.2
39	9	90.9	66.6	121.6
39	10	93.4	68.4	124.2
39	11	95.9	70.2	127.6
39	12	98.4	72.1	130.6
39	13	101.0	74.0	133.7
39	14	103.6	75.9	135.3
39	15	106.3	77.9	138.7
39	16	109.0	82.0	142.2
39	17	111.8	84.0	145.4
39	18	114.6	86.1	148.2
39	19	117.4	88.3	151.7
39	20	120.3	92.8	154.7
39	21	123.2	95.0	158.2
39	22	126.1	94.9	160.7
39	23	129.2	99.6	163.7
39	24	132.2	102.0	168.0
39	25	135.3	104.4	172.4
39	26	138.5	106.8	174.4
39	27	141.7	109.3	177.0
39	28	145.0	114.7	181.9
39	29	148.3	117.3	185.5
39	30	151.7	120.0	187.8
39	31	155.1	122.7	192.8
39	32	158.6	125.4	196.8
39	33	162.1	128.2	200.4
39	34	165.7	131.1	203.8
39	35	169.4	134.0	208.0
39	36	173.1	140.3	212.3
39	37	176.9	143.4	215.7
39	38	180.7	146.5	219.3
39	39	184.7	149.7	223.6
39	40	188.7	152.9	228.5
39	41	192.7	156.2	233.7
39	42	196.8	159.5	236.1
39	43	201.0	166.9	242.5
39	44	205.3	170.4	245.0

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
14	45	73.0	59.2	89.5
14	46	74.4	60.3	90.7
14	47	75.7	61.4	91.6
14	48	77.1	62.5	93.8
15	0	17.5	10.1	28.6
15	1	18.7	10.8	30.0
15	2	19.9	11.9	30.9
15	3	21.1	12.6	32.6
15	4	22.3	13.7	34.1
15	5	23.5	14.9	35.2
15	6	24.7	15.7	36.5
15	7	25.9	17.0	38.1
15	8	27.2	17.8	39.7
15	9	28.4	18.6	41.2
15	10	29.6	19.4	42.3
15	11	30.9	20.8	44.0
15	12	32.1	21.6	44.9
15	13	33.3	23.1	46.5
15	14	34.6	24.0	48.0
15	15	35.8	24.9	49.5
15	16	37.1	26.4	51.0
15	17	38.4	27.3	52.0
15	18	39.6	28.2	53.7
15	19	40.9	29.1	55.2
15	20	42.2	30.9	56.2
15	21	43.4	31.8	58.0
15	22	44.7	32.8	59.0
15	23	46.0	33.7	60.7
15	24	47.3	35.6	61.8
15	25	48.6	36.5	63.5
15	26	49.9	37.5	64.7
15	27	51.2	38.5	66.1
15	28	52.5	39.5	67.8
15	29	53.8	40.5	69.0
15	30	55.1	41.4	70.4
15	31	56.4	43.5	72.0
15	32	57.8	44.6	73.4
15	33	59.1	45.6	74.7
15	34	60.4	46.6	75.9
15	35	61.8	47.7	77.6
15	36	63.1	48.7	79.2
15	37	64.5	51.0	80.6
15	38	65.8	52.1	81.5
15	39	67.2	53.1	83.3
15	40	68.5	54.2	85.1
15	41	69.9	55.3	86.2
15	42	71.3	56.4	87.3
15	43	72.6	58.9	89.5
15	44	74.0	60.0	90.5

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
39	45	209.6	174.0	251.4
39	46	214.0	177.6	254.1
39	47	218.5	181.3	260.5
39	48	223.0	185.1	264.5
40	0	73.8	51.2	103.6
40	1	76.2	52.8	106.2
40	2	78.5	56.0	109.0
40	3	80.9	57.7	111.7
40	4	83.3	59.4	114.6
40	5	85.7	61.1	117.2
40	6	88.2	62.9	120.2
40	7	90.8	66.5	123.1
40	8	93.3	66.5	125.4
40	9	95.9	70.2	128.9
40	10	98.5	72.2	132.1
40	11	101.2	74.1	135.0
40	12	103.9	76.1	137.0
40	13	106.7	78.2	140.4
40	14	109.5	80.2	144.0
40	15	112.4	84.5	147.9
40	16	115.3	86.7	150.0
40	17	118.2	88.9	154.0
40	18	121.2	91.1	156.6
40	19	124.3	95.9	159.9
40	20	127.4	95.8	163.7
40	21	130.5	98.1	168.0
40	22	133.7	103.2	172.4
40	23	137.0	105.7	174.4
40	24	140.3	108.2	177.0
40	25	143.7	110.8	181.9
40	26	147.1	113.5	186.9
40	27	150.6	119.2	190.0
40	28	154.2	119.0	193.1
40	29	157.8	124.8	197.7
40	30	161.5	127.8	200.4
40	31	165.3	130.8	205.9
40	32	169.1	133.8	209.3
40	33	173.0	136.9	213.8
40	34	177.0	140.0	219.3
40	35	181.1	143.2	222.4
40	36	185.2	146.5	227.0
40	37	189.4	153.5	230.9
40	38	193.7	157.0	235.5
40	39	198.1	160.6	242.2
40	40	202.5	164.2	244.1
40	41	207.1	167.8	251.4
40	42	211.7	175.7	254.1
40	43	216.4	175.4	260.5
40	44	221.1	183.6	264.5

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
15	45	75.4	61.1	91.6
15	46	76.8	62.3	93.8
15	47	78.2	63.4	94.6
15	48	79.6	64.5	96.1
16	0	18.9	11.3	30.4
16	1	20.1	12.4	31.8
16	2	21.3	12.7	32.6
16	3	22.6	13.9	34.5
16	4	23.8	14.6	35.8
16	5	25.0	15.9	37.1
16	6	26.2	17.2	38.5
16	7	27.5	18.0	40.2
16	8	28.7	18.8	41.6
16	9	30.0	19.6	42.7
16	10	31.2	21.0	44.4
16	11	32.5	21.9	45.7
16	12	33.7	23.4	47.2
16	13	35.0	24.3	48.8
16	14	36.3	25.2	50.3
16	15	37.5	26.8	51.2
16	16	38.8	27.7	52.8
16	17	40.1	28.6	54.5
16	18	41.4	29.5	55.9
16	19	42.7	30.4	57.1
16	20	44.0	32.2	58.6
16	21	45.3	33.2	60.1
16	22	46.6	34.1	61.5
16	23	47.9	35.1	63.0
16	24	49.2	37.0	64.2
16	25	50.5	38.0	66.0
16	26	51.8	39.0	67.3
16	27	53.2	40.0	68.5
16	28	54.5	41.0	70.3
16	29	55.8	43.1	71.7
16	30	57.2	44.1	73.0
16	31	58.5	45.2	74.4
16	32	59.9	46.2	75.9
16	33	61.2	47.3	77.6
16	34	62.6	48.3	78.9
16	35	64.0	49.4	80.0
16	36	65.3	50.4	81.4
16	37	66.7	52.8	83.3
16	38	68.1	53.9	84.8
16	39	69.5	55.0	85.9
16	40	70.9	56.1	87.3
16	41	72.3	57.2	89.5
16	42	73.7	58.3	90.3
16	43	75.1	60.9	91.6
16	44	76.5	62.0	93.8

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
40	45	226.0	187.6	270.3
40	46	231.0	191.7	274.9
40	47	236.0	195.9	281.0
40	48	241.1	200.2	285.6
41	0	78.0	54.1	109.0
41	1	80.5	55.8	111.8
41	2	83.0	57.5	114.9
41	3	85.5	60.9	118.0
41	4	88.0	62.8	121.0
41	5	90.6	64.6	124.1
41	6	93.3	66.5	126.3
41	7	95.9	68.4	130.5
41	8	98.7	72.3	133.7
41	9	101.4	74.3	136.1
41	10	104.3	76.4	139.3
41	11	107.1	78.5	142.7
41	12	110.0	80.6	146.2
41	13	113.0	82.8	149.1
41	14	116.0	87.2	152.6
41	15	119.1	89.6	156.1
41	16	122.2	91.9	159.8
41	17	125.4	94.3	163.7
41	18	128.7	94.2	168.0
41	19	132.0	99.2	172.4
41	20	135.4	101.8	174.4
41	21	138.8	107.1	177.0
41	22	142.3	107.0	181.9
41	23	145.9	109.7	187.2
41	24	149.5	115.3	190.1
41	25	153.2	118.2	194.0
41	26	157.0	121.1	198.9
41	27	160.9	124.1	203.5
41	28	164.8	130.4	206.2
41	29	168.9	133.6	212.3
41	30	173.0	133.4	215.7
41	31	177.2	140.1	221.8
41	32	181.5	143.5	226.4
41	33	185.8	147.0	229.7
41	34	190.3	150.5	235.5
41	35	194.8	154.1	240.7
41	36	199.5	161.7	243.4
41	37	204.2	165.5	251.4
41	38	209.1	169.5	254.1
41	39	214.0	173.5	260.5
41	40	219.1	177.6	266.0
41	41	224.2	186.1	270.3
41	42	229.4	186.0	277.9
41	43	234.8	194.9	282.2
41	44	240.2	194.7	290.1

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
16	45	77.9	63.2	94.6
16	46	79.3	64.3	96.1
16	47	80.8	65.5	98.4
16	48	82.2	66.6	98.9
17	0	20.3	12.1	32.2
17	1	21.6	12.9	33.7
17	2	22.8	14.0	35.0
17	3	24.1	14.8	36.5
17	4	25.3	16.1	37.7
17	5	26.6	16.9	39.2
17	6	27.8	18.2	40.6
17	7	29.1	19.0	42.0
17	8	30.3	20.4	43.4
17	9	31.6	21.3	44.9
17	10	32.9	22.2	46.5
17	11	34.1	23.7	48.0
17	12	35.4	24.6	49.5
17	13	36.7	25.5	51.0
17	14	38.0	26.4	52.0
17	15	39.3	28.0	53.7
17	16	40.6	28.9	55.4
17	17	41.9	29.9	56.4
17	18	43.2	30.8	58.0
17	19	44.5	32.6	59.7
17	20	45.9	33.6	60.8
17	21	47.2	34.6	62.5
17	22	48.5	35.5	63.6
17	23	49.8	37.5	65.4
17	24	51.2	38.5	66.6
17	25	52.5	39.5	68.4
17	26	53.9	40.5	69.7
17	27	55.2	41.5	71.0
17	28	56.6	42.6	72.4
17	29	58.0	44.7	74.0
17	30	59.3	45.8	75.7
17	31	60.7	46.8	77.2
17	32	62.1	47.9	78.6
17	33	63.5	49.0	79.8
17	34	64.9	51.3	81.4
17	35	66.3	51.1	83.3
17	36	67.7	53.5	84.6
17	37	69.1	54.6	85.4
17	38	70.5	55.8	87.3
17	39	71.9	56.9	89.4
17	40	73.3	58.0	90.3
17	41	74.8	59.1	91.6
17	42	76.2	60.3	93.9
17	43	77.6	62.9	94.6
17	44	79.1	64.1	96.1

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
41	45	245.8	204.0	294.4
41	46	251.5	208.7	302.0
41	47	257.2	213.5	306.9
41	48	263.1	218.4	314.5
42	0	82.6	57.3	115.4
42	1	85.2	59.1	118.3
42	2	87.8	60.9	121.9
42	3	90.5	62.8	125.0
42	4	93.2	66.5	128.0
42	5	96.0	68.4	131.7
42	6	98.8	70.4	135.3
42	7	101.7	72.5	138.2
42	8	104.6	74.6	142.1
42	9	107.6	78.8	145.4
42	10	110.6	81.0	148.8
42	11	113.7	83.3	151.7
42	12	116.9	85.6	155.9
42	13	120.1	87.9	159.8
42	14	123.4	92.8	163.7
42	15	126.7	95.3	168.0
42	16	130.1	95.3	172.4
42	17	133.6	97.8	174.4
42	18	137.2	103.1	177.0
42	19	140.8	105.9	182.0
42	20	144.5	108.7	187.2
42	21	148.3	111.5	192.3
42	22	152.2	114.4	195.0
42	23	156.1	120.5	200.4
42	24	160.2	123.6	205.3
42	25	164.3	126.8	209.3
42	26	168.6	130.0	213.8
42	27	172.9	133.4	219.3
42	28	177.3	136.8	222.7
42	29	181.9	140.3	228.5
42	30	186.5	147.5	234.0
42	31	191.3	151.3	238.0
42	32	196.1	155.1	243.1
42	33	201.1	159.1	251.4
42	34	206.2	163.1	254.1
42	35	211.4	167.2	260.5
42	36	216.7	175.7	268.2
42	37	222.2	175.7	270.9
42	38	227.7	184.6	279.8
42	39	233.4	189.2	283.1
42	40	239.2	193.9	290.4
42	41	245.2	198.7	296.2
42	42	251.3	208.6	303.3
42	43	257.5	208.7	310.9
42	44	263.8	219.0	315.5

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
17	45	80.5	65.3	98.6
17	46	82.0	66.5	99.0
17	47	83.5	67.7	101.0
17	48	84.9	68.8	102.5
18	0	21.8	13.4	33.9
18	1	23.1	14.2	35.7
18	2	24.3	15.4	37.1
18	3	25.6	15.7	38.4
18	4	26.9	17.1	39.8
18	5	28.1	18.4	41.3
18	6	29.4	19.2	42.7
18	7	30.7	20.7	44.2
18	8	32.0	21.6	45.7
18	9	33.3	22.4	47.2
18	10	34.6	23.3	48.8
18	11	35.9	24.9	50.3
18	12	37.2	25.8	51.2
18	13	38.5	26.7	52.8
18	14	39.8	27.6	54.5
18	15	41.1	29.3	56.1
18	16	42.4	30.3	57.4
18	17	43.8	31.2	58.9
18	18	45.1	33.0	60.2
18	19	46.5	34.0	61.8
18	20	47.8	35.0	63.4
18	21	49.2	36.0	64.7
18	22	50.5	38.0	66.1
18	23	51.9	39.0	67.8
18	24	53.2	40.0	69.1
18	25	54.6	41.1	70.7
18	26	56.0	42.1	72.2
18	27	57.4	43.1	73.7
18	28	58.8	45.3	75.1
18	29	60.2	46.4	76.6
18	30	61.6	47.5	77.9
18	31	63.0	48.6	79.5
18	32	64.4	49.7	81.4
18	33	65.8	50.8	83.0
18	34	67.2	53.2	84.2
18	35	68.6	53.0	85.3
18	36	70.1	55.4	87.3
18	37	71.5	56.6	89.2
18	38	73.0	57.7	90.0
18	39	74.4	58.9	91.6
18	40	75.9	60.0	93.9
18	41	77.3	61.2	94.6
18	42	78.8	63.9	96.1
18	43	80.3	65.1	98.6
18	44	81.8	66.3	99.2

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
42	45	270.3	219.1	325.8
42	46	276.9	229.8	328.6
42	47	283.6	235.4	340.8
42	48	290.5	241.2	343.5
43	0	87.6	60.7	123.1
43	1	90.4	62.7	126.0
43	2	93.2	64.6	129.1
43	3	96.0	68.5	132.1
43	4	99.0	70.5	136.7
43	5	101.9	72.7	140.4
43	6	105.0	74.8	143.9
43	7	108.1	77.0	147.2
43	8	111.2	79.3	151.7
43	9	114.5	81.6	155.5
43	10	117.8	86.3	158.2
43	11	121.1	88.7	163.3
43	12	124.6	91.2	167.8
43	13	128.1	93.8	172.1
43	14	131.7	96.5	174.4
43	15	135.4	99.2	177.0
43	16	139.1	101.9	182.0
43	17	143.0	107.5	187.2
43	18	147.0	110.5	192.9
43	19	151.0	113.5	197.7
43	20	155.2	116.7	200.4
43	21	159.4	119.9	206.2
43	22	163.8	123.1	212.3
43	23	168.2	126.5	215.7
43	24	172.8	133.3	221.8
43	25	177.5	133.5	227.0
43	26	182.3	140.7	233.7
43	27	187.3	144.5	238.0
43	28	192.4	148.4	243.1
43	29	197.6	152.4	251.4
43	30	202.9	160.5	254.1
43	31	208.4	160.8	260.5
43	32	214.0	169.3	269.7
43	33	219.8	173.9	273.3
43	34	225.8	178.6	281.0
43	35	231.8	187.9	287.7
43	36	238.1	188.3	294.4
43	37	244.5	198.2	302.0
43	38	251.0	198.6	306.9
43	39	257.7	208.9	315.5
43	40	264.6	214.5	322.8
43	41	271.7	220.2	328.6
43	42	278.9	226.0	340.8
43	43	286.3	232.0	343.5
43	44	293.8	238.1	356.3

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
18	45	83.3	67.5	101.0
18	46	84.8	68.7	102.8
18	47	86.3	69.9	103.8
18	48	87.8	71.1	106.2
19	0	23.3	14.4	36.1
19	1	24.6	15.1	37.6
19	2	25.9	16.4	39.1
19	3	27.2	17.3	40.2
19	4	28.5	18.1	41.8
19	5	29.8	19.5	43.4
19	6	31.1	20.9	44.9
19	7	32.4	21.8	46.5
19	8	33.7	22.7	48.0
19	9	35.0	23.6	49.5
19	10	36.3	25.2	51.0
19	11	37.6	26.1	52.0
19	12	39.0	27.0	53.7
19	13	40.3	27.9	55.4
19	14	41.6	29.7	57.0
19	15	43.0	30.7	58.0
19	16	44.3	31.6	59.8
19	17	45.7	32.6	61.3
19	18	47.1	34.5	62.6
19	19	48.4	35.5	64.2
19	20	49.8	36.5	66.0
19	21	51.2	37.5	67.3
19	22	52.6	39.5	69.0
19	23	54.0	40.6	70.4
19	24	55.4	41.6	71.7
19	25	56.8	42.7	73.4
19	26	58.2	43.7	75.0
19	27	59.6	44.8	76.4
19	28	61.0	47.1	77.8
19	29	62.4	48.2	79.5
19	30	63.9	49.3	81.2
19	31	65.3	50.4	82.7
19	32	66.8	51.5	83.7
19	33	68.2	54.0	85.3
19	34	69.7	53.7	87.3
19	35	71.1	56.3	89.1
19	36	72.6	57.4	89.8
19	37	74.1	58.6	91.6
19	38	75.5	59.8	93.9
19	39	77.0	60.9	94.6
19	40	78.5	62.1	96.1
19	41	80.0	64.9	98.6
19	42	81.5	66.1	99.5
19	43	83.1	67.3	101.0
19	44	84.6	68.6	103.3

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
43	45	301.5	244.4	360.0
43	46	309.4	256.8	372.4
43	47	317.4	263.5	378.5
43	48	325.7	270.3	388.2
44	0	93.1	64.6	130.6
44	1	96.1	66.6	135.3
44	2	99.1	68.7	138.7
44	3	102.2	70.9	142.2
44	4	105.4	75.1	145.4
44	5	108.6	77.4	150.0
44	6	111.9	79.8	154.0
44	7	115.3	82.2	158.1
44	8	118.7	84.7	162.7
44	9	122.3	87.2	167.2
44	10	125.9	92.2	172.0
44	11	129.6	95.0	174.4
44	12	133.4	95.1	177.9
44	13	137.4	97.9	182.9
44	14	141.4	103.5	187.8
44	15	145.5	106.6	193.2
44	16	149.7	109.7	199.0
44	17	154.1	115.9	203.5
44	18	158.5	119.2	209.3
44	19	163.1	122.7	213.8
44	20	167.9	126.2	219.3
44	21	172.7	129.9	226.4
44	22	177.7	133.6	229.7
44	23	182.9	137.5	235.5
44	24	188.2	141.5	243.1
44	25	193.6	145.6	251.4
44	26	199.3	153.7	254.1
44	27	205.1	158.2	260.5
44	28	211.0	162.8	270.3
44	29	217.2	167.5	274.9
44	30	223.5	172.4	282.2
44	31	230.0	177.5	290.4
44	32	236.7	187.3	296.2
44	33	243.6	188.0	305.1
44	34	250.8	198.4	314.5
44	35	258.1	204.1	320.9
44	36	265.6	210.1	328.6
44	37	273.3	221.5	340.8
44	38	281.2	222.5	343.5
44	39	289.4	234.6	359.4
44	40	297.8	235.5	364.3
44	41	306.3	248.3	378.5
44	42	315.1	255.4	382.7
44	43	324.1	262.7	398.6
44	44	333.3	270.2	401.7

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
19	45	86.1	69.8	103.9
19	46	87.6	71.0	106.2
19	47	89.2	72.3	107.6
19	48	90.7	73.5	109.1
20	0	24.9	15.8	38.1
20	1	26.2	16.6	39.7
20	2	27.5	17.5	41.2
20	3	28.8	18.3	42.7
20	4	30.1	19.7	44.2
20	5	31.5	20.6	45.7
20	6	32.8	22.1	47.2
20	7	34.1	23.0	48.8
20	8	35.4	23.9	50.3
20	9	36.8	25.5	51.2
20	10	38.1	26.4	52.8
20	11	39.5	27.4	54.5
20	12	40.8	28.3	56.2
20	13	42.2	30.1	57.6
20	14	43.6	31.1	59.0
20	15	44.9	32.0	60.7
20	16	46.3	33.0	62.5
20	17	47.7	34.9	63.6
20	18	49.1	36.0	65.4
20	19	50.5	37.0	66.6
20	20	51.9	38.0	68.5
20	21	53.3	40.1	69.7
20	22	54.7	41.1	71.5
20	23	56.1	42.2	73.0
20	24	57.6	43.3	74.4
20	25	59.0	44.4	75.9
20	26	60.4	45.5	77.6
20	27	61.9	47.8	79.3
20	28	63.3	48.9	80.8
20	29	64.8	50.0	82.3
20	30	66.3	51.1	83.4
20	31	67.7	52.3	85.3
20	32	69.2	53.4	87.3
20	33	70.7	55.9	88.7
20	34	72.2	57.1	89.6
20	35	73.7	58.3	91.6
20	36	75.2	59.5	93.9
20	37	76.7	60.7	94.6
20	38	78.2	61.9	96.1
20	39	79.8	63.1	98.6
20	40	81.3	64.3	99.5
20	41	82.8	65.5	101.0
20	42	84.4	68.4	103.3
20	43	85.9	69.7	104.4
20	44	87.5	70.9	106.2

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
44	45	342.8	277.8	418.7
44	46	352.4	285.7	423.0
44	47	362.3	293.7	439.5
44	48	372.4	301.8	446.2
45	0	99.3	68.8	140.4
45	1	102.5	71.1	144.2
45	2	105.8	73.4	148.9
45	3	109.2	75.7	152.6
45	4	112.6	78.1	156.6
45	5	116.2	80.6	160.7
45	6	119.8	83.1	165.2
45	7	123.6	85.7	170.1
45	8	127.4	90.8	176.4
45	9	131.4	93.6	180.4
45	10	135.4	96.5	184.0
45	11	139.6	99.5	190.0
45	12	143.9	102.6	195.0
45	13	148.3	105.7	199.9
45	14	152.9	112.0	206.2
45	15	157.6	115.4	212.3
45	16	162.4	119.0	215.7
45	17	167.4	122.6	222.7
45	18	172.6	126.4	228.5
45	19	178.0	130.3	235.5
45	20	183.5	134.4	243.1
45	21	189.2	142.3	251.4
45	22	195.1	146.7	254.1
45	23	201.2	151.3	260.5
45	24	207.5	156.1	270.3
45	25	214.1	161.0	279.8
45	26	220.9	170.4	283.1
45	27	227.9	175.8	294.4
45	28	235.2	176.8	302.0
45	29	242.7	187.2	310.9
45	30	250.4	193.2	318.2
45	31	258.4	199.4	328.6
45	32	266.7	205.8	340.8
45	33	275.3	212.4	343.5
45	34	284.1	219.2	360.0
45	35	293.3	232.0	365.5
45	36	302.6	233.5	378.3
45	37	312.3	247.0	388.2
45	38	322.3	254.9	401.7
45	39	332.5	263.0	413.9
45	40	343.0	278.0	423.0
45	41	353.8	279.9	439.5
45	42	364.9	295.7	446.2
45	43	376.2	297.6	467.0
45	44	387.9	314.4	472.5

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
20	45	89.1	72.2	108.0
20	46	90.7	73.5	109.1
20	47	92.2	74.8	111.4
20	48	93.8	76.1	112.8
21	0	26.5	16.8	40.1
21	1	27.9	18.2	41.3
21	2	29.2	18.5	43.1
21	3	30.5	19.4	44.8
21	4	31.8	20.8	46.4
21	5	33.2	21.7	47.9
21	6	34.5	23.3	49.5
21	7	35.9	24.2	51.0
21	8	37.3	25.8	52.0
21	9	38.6	26.8	53.7
21	10	40.0	27.7	55.4
21	11	41.4	28.7	57.1
21	12	42.8	30.5	58.6
21	13	44.1	31.5	60.1
21	14	45.5	32.5	61.6
21	15	46.9	33.5	63.0
21	16	48.4	35.4	64.7
21	17	49.8	36.5	66.1
21	18	51.2	37.5	67.8
21	19	52.6	38.5	69.2
21	20	54.1	39.6	70.9
21	21	55.5	41.7	72.4
21	22	56.9	42.8	74.0
21	23	58.4	43.9	75.8
21	24	59.9	45.0	77.6
21	25	61.3	46.1	79.2
21	26	62.8	48.5	80.6
21	27	64.3	49.6	81.7
21	28	65.8	50.7	83.4
21	29	67.3	51.9	85.3
21	30	68.8	53.1	87.2
21	31	70.3	54.2	88.6
21	32	71.8	56.8	89.5
21	33	73.3	58.0	91.6
21	34	74.9	59.2	93.9
21	35	76.4	60.4	94.6
21	36	77.9	61.7	96.1
21	37	79.5	62.9	98.6
21	38	81.1	64.1	99.8
21	39	82.6	65.4	101.0
21	40	84.2	68.2	103.6
21	41	85.8	69.5	104.7
21	42	87.4	70.8	106.2
21	43	89.0	72.1	108.3
21	44	90.6	73.4	109.4

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
45	45	399.8	316.2	495.6
45	46	412.0	334.0	498.7
45	47	424.5	344.1	524.9
45	48	437.4	354.5	526.2
46	0	106.3	71.6	151.7
46	1	109.8	76.1	155.9
46	2	113.4	78.7	159.9
46	3	117.2	81.3	163.9
46	4	121.0	83.9	168.3
46	5	125.0	86.7	176.8
46	6	129.1	89.5	181.9
46	7	133.3	92.4	186.9
46	8	137.6	98.1	192.3
46	9	142.1	101.3	196.8
46	10	146.7	104.6	201.1
46	11	151.5	108.0	207.8
46	12	156.5	111.6	215.4
46	13	161.6	115.2	220.6
46	14	167.0	119.0	227.9
46	15	172.5	123.0	235.5
46	16	178.2	130.5	243.1
46	17	184.2	134.9	251.4
46	18	190.4	135.7	254.1
46	19	196.8	144.2	260.8
46	20	203.5	149.1	270.3
46	21	210.5	154.2	281.0
46	22	217.8	159.5	290.4
46	23	225.4	169.5	296.2
46	24	233.3	175.4	306.9
46	25	241.5	176.9	315.5
46	26	250.0	188.0	328.6
46	27	258.9	194.7	340.8
46	28	268.2	201.6	343.5
46	29	277.8	208.9	360.0
46	30	287.8	216.4	372.2
46	31	298.1	230.0	382.9
46	32	308.8	232.2	398.6
46	33	319.9	246.8	405.3
46	34	331.4	255.7	423.0
46	35	343.3	264.8	439.5
46	36	355.5	281.2	446.2
46	37	368.1	284.0	471.2
46	38	381.1	294.0	476.1
46	39	394.5	312.1	498.1
46	40	408.3	315.0	515.2
46	41	422.5	334.2	526.2
46	42	437.1	337.2	555.5
46	43	452.0	357.6	556.7
46	44	467.4	369.8	586.6

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
21	45	92.2	74.7	111.8
21	46	93.8	76.0	112.9
21	47	95.4	79.2	114.9
21	48	97.1	78.7	116.4
22	0	28.2	17.9	42.3
22	1	29.5	18.8	44.0
22	2	30.9	19.6	45.5
22	3	32.3	21.1	47.2
22	4	33.6	22.0	48.8
22	5	35.0	23.6	50.3
22	6	36.4	24.5	51.3
22	7	37.7	26.2	52.9
22	8	39.1	27.1	54.5
22	9	40.5	28.1	56.2
22	10	41.9	29.1	58.0
22	11	43.3	30.9	59.7
22	12	44.8	31.9	60.8
22	13	46.2	32.9	62.5
22	14	47.6	33.9	64.2
22	15	49.0	35.0	66.0
22	16	50.5	37.0	67.3
22	17	51.9	38.0	69.0
22	18	53.4	39.1	70.4
22	19	54.8	40.2	72.2
22	20	56.3	41.2	73.7
22	21	57.8	43.5	75.7
22	22	59.3	44.6	77.2
22	23	60.8	45.7	78.6
22	24	62.3	46.8	80.0
22	25	63.8	47.9	81.5
22	26	65.3	50.4	83.3
22	27	66.8	51.5	85.3
22	28	68.3	52.7	87.0
22	29	69.8	53.9	88.2
22	30	71.4	55.1	89.5
22	31	72.9	56.3	91.6
22	32	74.5	58.9	93.9
22	33	76.1	60.2	94.6
22	34	77.6	61.4	96.1
22	35	79.2	62.7	98.6
22	36	80.8	63.9	100.1
22	37	82.4	65.2	101.0
22	38	84.0	66.4	103.6
22	39	85.6	69.4	105.0
22	40	87.2	70.7	106.4
22	41	88.9	72.0	108.8
22	42	90.5	73.4	110.0
22	43	92.1	74.7	111.8
22	44	93.8	76.0	113.8

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
46	45	483.3	382.3	600.6
46	46	499.6	404.9	618.9
46	47	516.3	408.4	648.2
46	48	533.5	422.0	652.5
47	0	114.3	79.3	163.7
47	1	118.3	82.0	168.0
47	2	122.4	84.8	177.0
47	3	126.6	85.3	181.9
47	4	130.9	88.2	187.2
47	5	135.4	91.3	192.7
47	6	140.1	97.2	198.8
47	7	145.0	100.5	204.8
47	8	150.0	104.0	211.8
47	9	155.3	107.7	218.7
47	10	160.7	111.4	226.4
47	11	166.4	115.4	234.0
47	12	172.3	119.5	242.2
47	13	178.5	123.8	250.5
47	14	185.0	131.9	256.3
47	15	191.8	136.7	264.5
47	16	198.9	141.8	273.3
47	17	206.4	147.1	283.1
47	18	214.2	152.7	294.4
47	19	222.4	158.5	303.3
47	20	231.0	169.2	315.5
47	21	240.0	175.8	328.6
47	22	249.5	177.9	340.8
47	23	259.5	185.0	343.5
47	24	270.0	197.7	360.0
47	25	280.9	205.8	378.3
47	26	292.4	214.2	388.4
47	27	304.4	217.0	401.8
47	28	316.9	232.1	423.0
47	29	330.0	248.2	439.5
47	30	343.6	251.7	446.2
47	31	357.8	262.0	471.2
47	32	372.5	280.1	495.6
47	33	387.7	299.1	498.7
47	34	403.4	295.5	526.2
47	35	419.8	315.6	555.5
47	36	436.6	336.9	556.7
47	37	454.1	341.4	586.6
47	38	472.1	355.0	618.9
47	39	490.7	378.6	623.8
47	40	509.9	393.4	652.5
47	41	529.8	398.4	687.9
47	42	550.4	424.6	700.1
47	43	571.7	441.1	724.5
47	44	593.8	458.1	763.6

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
22	45	95.5	77.4	115.1
22	46	97.1	78.7	117.3
22	47	98.8	82.0	118.7
22	48	100.5	83.4	120.4
23	0	29.9	19.0	44.4
23	1	31.3	20.5	46.0
23	2	32.7	21.4	47.7
23	3	34.1	22.3	49.2
23	4	35.5	23.9	51.0
23	5	36.8	24.8	52.2
23	6	38.3	25.8	53.8
23	7	39.7	26.7	55.4
23	8	41.1	28.5	57.1
23	9	42.5	29.5	58.9
23	10	43.9	30.5	60.2
23	11	45.4	32.3	61.8
23	12	46.8	33.4	63.6
23	13	48.3	34.4	65.4
23	14	49.7	35.5	66.6
23	15	51.2	37.5	68.5
23	16	52.7	38.6	70.3
23	17	54.2	39.7	71.7
23	18	55.6	40.8	73.4
23	19	57.1	41.9	75.0
23	20	58.6	43.0	76.4
23	21	60.2	45.2	77.9
23	22	61.7	46.4	79.5
23	23	63.2	47.5	81.4
23	24	64.7	48.7	83.3
23	25	66.3	51.1	85.3
23	26	67.8	51.0	86.9
23	27	69.4	53.5	87.8
23	28	71.0	54.7	89.5
23	29	72.5	56.0	91.6
23	30	74.1	57.2	93.9
23	31	75.7	58.4	94.6
23	32	77.3	61.2	96.1
23	33	78.9	62.4	98.6
23	34	80.5	63.7	100.4
23	35	82.2	65.0	101.2
23	36	83.8	66.3	103.6
23	37	85.4	67.6	105.6
23	38	87.1	68.9	106.4
23	39	88.7	70.2	109.0
23	40	90.4	73.3	110.3
23	41	92.1	74.6	112.2
23	42	93.8	76.0	114.0
23	43	95.5	77.4	115.4
23	44	97.2	78.8	117.5

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
47	45	616.7	487.8	786.4
47	46	640.5	494.2	804.8
47	47	665.3	513.2	847.5
47	48	691.0	546.6	886.5
48	0	123.9	83.5	181.9
48	1	128.4	86.5	187.2
48	2	133.1	89.7	192.9
48	3	137.9	92.9	199.0
48	4	143.0	99.2	206.3
48	5	148.3	102.8	212.4
48	6	153.9	106.7	222.4
48	7	159.7	110.7	229.7
48	8	165.8	114.9	238.0
48	9	172.2	119.4	245.0
48	10	178.9	124.0	257.8
48	11	186.0	125.3	268.8
48	12	193.5	130.4	279.5
48	13	201.4	135.7	284.0
48	14	209.8	145.5	301.1
48	15	218.7	151.7	314.5
48	16	228.2	158.2	323.1
48	17	238.2	165.2	340.8
48	18	248.9	172.6	350.2
48	19	260.3	175.4	365.2
48	20	272.3	183.5	382.9
48	21	285.1	197.7	398.8
48	22	298.7	207.1	423.2
48	23	313.0	217.0	439.5
48	24	328.2	233.9	448.0
48	25	344.1	245.3	472.5
48	26	360.9	257.3	498.7
48	27	378.4	262.4	526.2
48	28	396.8	275.1	555.5
48	29	416.0	296.6	556.7
48	30	436.0	310.9	586.6
48	31	456.9	334.6	618.9
48	32	478.6	341.2	652.5
48	33	501.2	357.3	687.9
48	34	524.7	374.1	700.1
48	35	549.3	402.3	724.5
48	36	574.8	432.2	763.6
48	37	601.5	440.6	804.5
48	38	629.4	448.7	847.5
48	39	658.6	482.4	886.5
48	40	689.3	518.3	892.6
48	41	721.5	542.6	941.5
48	42	755.6	553.4	993.9
48	43	791.5	579.7	1048.9
48	44	829.7	623.9	1108.7

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
23	45	98.9	80.2	119.2
23	46	100.6	81.6	121.2
23	47	102.4	83.0	123.1
23	48	104.1	86.4	124.7
24	0	31.7	20.7	46.6
24	1	33.1	21.7	48.1
24	2	34.5	23.3	50.1
24	3	35.9	24.2	51.9
24	4	37.3	25.2	53.3
24	5	38.8	26.1	54.7
24	6	40.2	27.1	56.4
24	7	41.7	28.9	58.0
24	8	43.1	29.9	59.8
24	9	44.6	30.9	61.3
24	10	46.0	32.8	63.0
24	11	47.5	33.9	64.7
24	12	49.0	34.9	66.1
24	13	50.5	36.0	67.8
24	14	52.0	38.1	69.7
24	15	53.5	39.2	71.0
24	16	55.0	40.3	73.0
24	17	56.5	41.4	74.4
24	18	58.0	42.5	75.9
24	19	59.5	44.8	77.8
24	20	61.1	45.9	79.5
24	21	62.6	47.1	81.4
24	22	64.2	48.3	83.3
24	23	65.8	49.4	85.1
24	24	67.3	50.6	86.3
24	25	68.9	53.2	87.7
24	26	70.5	54.4	89.5
24	27	72.1	55.6	91.6
24	28	73.7	56.9	93.9
24	29	75.3	58.1	94.6
24	30	77.0	60.9	96.1
24	31	78.6	62.2	98.6
24	32	80.3	63.5	100.6
24	33	81.9	64.8	101.5
24	34	83.6	66.1	103.6
24	35	85.2	67.4	105.7
24	36	86.9	68.8	107.0
24	37	88.6	70.1	109.0
24	38	90.3	71.4	111.1
24	39	92.0	74.6	112.2
24	40	93.8	76.0	114.7
24	41	95.5	77.4	116.4
24	42	97.2	78.8	118.0
24	43	99.0	80.2	120.1
24	44	100.7	81.7	121.8

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
48	45	870.4	654.5	1153.8
48	46	913.9	705.0	1174.6
48	47	960.6	703.6	1245.4
48	48	1011.2	740.6	1323.5
49	0	135.5	88.7	203.4
49	1	140.8	92.1	209.3
49	2	146.4	98.7	219.3
49	3	152.3	102.6	228.4
49	4	158.5	106.8	235.5
49	5	165.0	111.2	243.4
49	6	172.0	115.9	260.5
49	7	179.3	120.8	270.3
49	8	187.2	126.1	281.0
49	9	195.6	128.0	292.9
49	10	204.6	137.9	306.9
49	11	214.3	140.2	320.9
49	12	224.7	147.0	343.5
49	13	235.9	159.0	360.0
49	14	248.1	162.3	371.9
49	15	261.3	170.9	398.5
49	16	275.5	185.7	416.8
49	17	290.9	190.4	446.1
49	18	307.6	195.3	471.2
49	19	325.5	206.6	498.1
49	20	344.8	218.9	520.7
49	21	365.4	231.9	555.5
49	22	387.3	245.9	567.0
49	23	410.6	260.6	618.9
49	24	435.2	276.2	650.0
49	25	461.1	292.7	687.9
49	26	488.4	310.0	721.5
49	27	517.2	338.4	763.6
49	28	547.5	358.2	804.5
49	29	579.4	379.1	847.2
49	30	613.1	401.2	879.2
49	31	648.8	424.5	941.5
49	32	686.7	449.3	974.4
49	33	727.0	475.7	1048.9
49	34	770.1	549.0	1094.0
49	35	816.4	550.1	1174.6
49	36	866.4	583.8	1245.4
49	37	920.8	620.5	1282.0
49	38	980.4	660.6	1410.2
49	39	1046.2	705.0	1509.0
49	40	1119.9	754.6	1614.0
49	41	1203.3	810.8	1750.7
49	42	1299.7	850.4	1896.6
49	43	1413.6	924.9	2101.6
49	44	1553.1	1016.2	2353.1

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
24	45	102.5	83.1	123.4
24	46	104.3	86.6	125.1
24	47	106.1	86.0	127.3
24	48	107.9	89.6	128.9

Positive Large Wells	Positive Small Wells	MPN	95% Confidence Lower Limit	95% Confidence Upper Limit
49	45	1732.9	1167.7	2709.5
49	46	1986.3	1222.0	3300.2
49	47	2419.6	1630.4	4716.1
49	48	>2419.6	1439.5	infinite

Appendix 2:
Site Locations with GPS Coordinates

Southampton Lab - PBK

Site name	Latitude	Longitude
Cutchogue: Wickham Creek	41.003681	-72.470507
East Quogue: Tiana Bay Park	40.829067	-72.529373
East Quogue: Triton Lane	40.820735	-72.546179
East Quogue: Weesuck Creek Boat Ramp	40.840551	-72.570786
Flanders: Long Neck Blvd	40.91485	-72.606484
Flying Point: Mecox Bay	40.892166	-72.327704
Flying Point: Scott Cameron Beach	40.891517	-72.326674
Hampton Bays: Argonne Rd. East	40.876697	-72.500464
Hampton Bays: Meschutt Beach	40.895	-72.502
Hampton Bays: Old Ponquogue Bridge- Marine Park	40.841	-72.498
Hampton Bays: Ponquogue Beach	40.836	-72.494
Hampton Bays: Red Creek	40.908593	-72.551512
North Fork: Bay Ave, Mattituck	40.977819	-72.530294
North Fork: S. Jamesport Ave.	40.933497	-72.576214
North Sea Harbor, Noyac Rd.	40.938855	-72.408133
North Sea: Big Fresh Pond	40.923512	-72.419107
North Sea: Little Fresh Pond North	40.919984	-72.408951
North Sea: Little Fresh Pond West	40.917726	-72.409215
North Sea: Towd Point	40.948268	-72.414986
Noyac: Circle Beach	41.000907	-72.347428
Noyac: Circle Beach Estuary	40.997815	-72.349541
Riverhead: Indian Island County Park	40.925443	-72.618322
Riverhead: Wildwood Lake	40.896472	-72.678583
Sag Harbor: Havens Beach	41.000783	-72.283489
Sag Harbor: Little Northwest Creek	41.001667	-72.270556
Sag Harbor: Long Beach	40.998663	-72.323119

Sag Harbor: Windmill Beach	41.003015	-72.296199
Sagg Main Beach	40.907046	-72.287364
Sagg Pond	40.906851	-72.290154
Shelter Island: Coecles Harbor Anchorage	41.066701	-72.290354
Shelter Island: Dering Harbor	41.084172	-72.352667
Shelter Island: West Neck Anchorage	41.044541	-72.344001
Southampton: Gin Lane/Bathing Corp.	40.868105	-72.390933
Southampton: Heady Creek	40.87652	-72.420122
Southampton: Old Town Beach	40.875977	-72.370087
Southold: Breezy Point Inlet	41.08	-72.387361
Southold: Conkling Point Inlet	41.0776667	-72.378722
Southold: Goose Creek	41.049283	-72.42375
Southold: Richmond Creek East	41.038128	-72.448583
Southold: Richmond Creek West	41.03366	-72.451917
Tuckahoe: Cold Spring Pond South	40.899026	-72.454802

East Hampton Lab - CCOM

Site name	Latitude	Longitude
Accabonac Harbor: East of Old Stone Hwy Culvert	41.021023	-72.154445
Accabonac Harbor: Louse Point Beach	41.019391	-72.135912
Accabonac Harbor: Shipyard Ramp	41.02133	-72.151845
Ditch Plains: East of Jetty	41.039292	-71.914292
EH Fithian Lane: South Drain	40.963933	-72.181912
EH Methodist Lane Swale	40.966423	-72.182456
EH Town Pond	40.954243	-72.193286
EH Village Green Bioswale	40.956471	-72.191935
Fort Pond: Industrial	41.04499	-71.953427

Fort Pond: Ramp	41.036574	-71.946582
Fresh Pond: Beach	40.995604	-72.110803
Fresh Pond: Creek	40.99585	-72.112166
Georgica Beach Ass./ Third Jetty	40.9302	-72.228398
Georgica Pond Beach-side	40.930913	-72.229729
Georgica Pond: Cove Hollow Access	40.944556	-72.216823
Georgica Pond: Rte 27 Kayak Launch	40.949812	-72.239256
Hook Pond South	40.946721	-72.190583
Hook Pond: Dunemere Lane	40.955123	-72.177687
L I Sound: Fort Pond Bay at Navy Rd	41.043298	-71.962525
L I Sound: Fort Pond Bay at Tuthill Rd	41.049995	-71.957016
L I Sound: Soundview Drive Beach	41.072854	-71.949627
L I Sound: Soundview Drive Culvert	41.072524	-71.950957
Lake Montauk: Benson Dr. Culvert	41.045416	-71.913694
Lake Montauk: Causeway South	41.064869	-71.935405
Lake Montauk: East Creek	41.049397	-71.909733
Lake Montauk: Harbor	41.071473	-71.938811
Lake Montauk: Little Reed Pond Creek	41.071983	-71.919729
Lake Montauk: Nature Preserve Beach	41.071044	-71.919754
Lake Montauk: South Beach	41.04935	-71.910614
Lake Montauk: Stepping Stones	41.051362	-71.925133
Lake Montauk: West Creek	41.048139	-71.912278
Napeague Harbor: East	41.006667	-72.035278
Napeague Harbor: West	41.003498	-72.059321
Northwest Creek: Culvert	41.00313	-72.243719
Northwest Creek: Ramp	41.010114	-72.247353
Pussy's Pond	41.019672	-72.155617
Surfside Place: Ocean Beach	41.033358	-71.937565

Surfside Place: Outfall Pipe	41.033939	-71.937811
Three Mile Harbor: Folkstone Drive	41.032282	-72.18127
Three Mile Harbor: Head of the Harbor	41.000312	-72.182184
Three Mile Harbor: Settler's Landing	41.018746	-72.201869
Tuthill Pond	41.051318	-71.955382

Appendix 3:
Photo Reference for Sampling with Whirl Pak

How to collect a sample

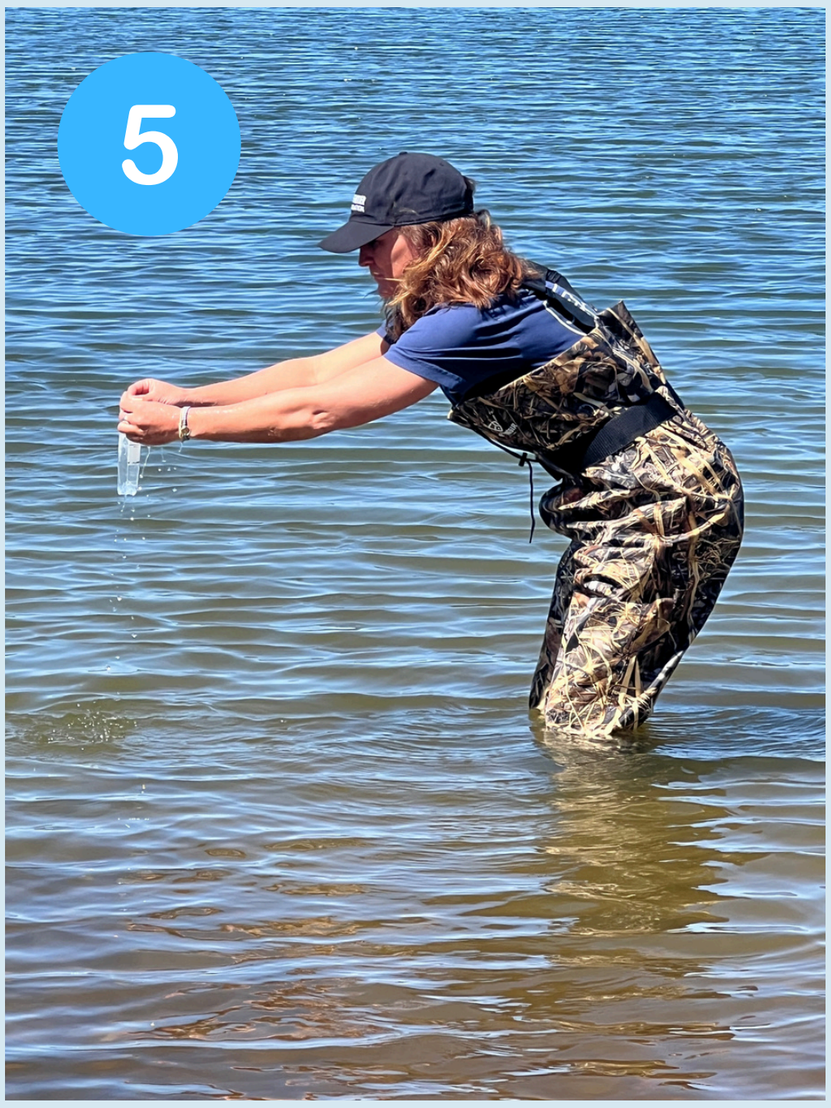
Using a WhirlPak

Step 1: After sanitizing your hands, wade into the water knee deep, make sure not to disturb the sediment

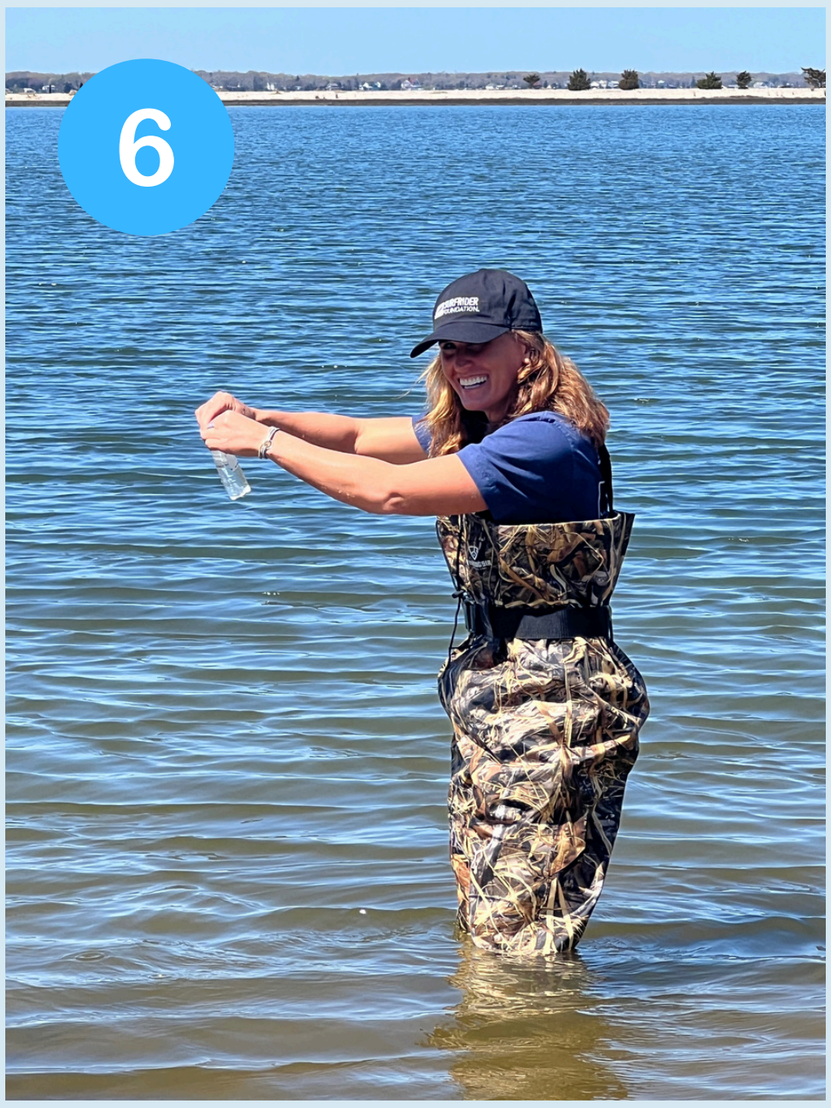
Step 2: Take the bag by the twist tie and dunk the bag in, ensuring that you do not touch the inside of the bag

Step 3: Dunk the bag in at least six inches from the surface

Step 4: Fill to the 100mL line



Step 5: Take the sample out



Step 6: Whirl the bag by taking the tabs and flipping it away from you three times

Step 7: What the bag should look like

Step 8: Take the two tabs and twist them together upward
Flip the sample upside to ensure no leaks are present

Step 9: Your finished sample!

After taking the sample, ensure it enters a cooler and is brought to your nearest lab within 6 hours of sampling

Appendix 4:
MPN Table for Quanti-Tray 2000

IDEXX Quanti-Tray*/2000 MPN Table

# Large Wells Positive	# Small Wells Positive																								
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
0	<1	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.1	15.1	16.1	17.1	18.1	19.1	20.2	21.2	22.2	23.3	24.3
1	1.0	2.0	3.0	4.0	5.0	6.0	7.1	8.1	9.1	10.1	11.1	12.1	13.2	14.2	15.2	16.2	17.3	18.3	19.3	20.4	21.4	22.4	23.5	24.5	25.6
2	2.0	3.0	4.1	5.1	6.1	7.1	8.1	9.2	10.2	11.2	12.2	13.3	14.3	15.4	16.4	17.4	18.5	19.5	20.6	21.6	22.7	23.7	24.8	25.8	26.9
3	3.1	4.1	5.1	6.1	7.2	8.2	9.2	10.3	11.3	12.4	13.4	14.5	15.5	16.5	17.6	18.6	19.7	20.8	21.8	22.9	23.9	25.0	26.1	27.1	28.2
4	4.1	5.2	6.2	7.2	8.3	9.3	10.4	11.4	12.5	13.5	14.6	15.6	16.7	17.8	18.8	19.9	21.0	22.0	23.1	24.2	25.3	26.3	27.4	28.5	29.6
5	5.2	6.3	7.3	8.4	9.4	10.5	11.5	12.6	13.7	14.7	15.8	16.9	17.9	19.0	20.1	21.2	22.2	23.3	24.4	25.5	26.6	27.7	28.8	29.9	31.0
6	6.3	7.4	8.4	9.5	10.6	11.6	12.7	13.8	14.9	16.0	17.0	18.1	19.2	20.3	21.4	22.5	23.6	24.7	25.8	26.9	28.0	29.1	30.2	31.3	32.4
7	7.5	8.5	9.6	10.7	11.8	12.8	13.9	15.0	16.1	17.2	18.3	19.4	20.5	21.6	22.7	23.8	24.9	26.0	27.1	28.3	29.4	30.5	31.6	32.8	33.9
8	8.6	9.7	10.8	11.9	13.0	14.1	15.2	16.3	17.4	18.5	19.6	20.7	21.8	22.9	24.1	25.2	26.3	27.4	28.6	29.7	30.8	32.0	33.1	34.3	35.4
9	9.8	10.9	12.0	13.1	14.2	15.3	16.4	17.6	18.7	19.8	20.9	22.0	23.2	24.3	25.4	26.6	27.7	28.9	30.0	31.2	32.3	33.5	34.6	35.8	37.0
10	11.0	12.1	13.2	14.4	15.5	16.6	17.7	18.9	20.0	21.1	22.3	23.4	24.6	25.7	26.9	28.0	29.2	30.3	31.5	32.7	33.8	35.0	36.2	37.4	38.6
11	12.2	13.4	14.5	15.6	16.8	17.9	19.1	20.2	21.4	22.5	23.7	24.8	26.0	27.2	28.3	29.5	30.7	31.9	33.0	34.2	35.4	36.6	37.8	39.0	40.2
12	13.5	14.6	15.8	16.9	18.1	19.3	20.4	21.6	22.8	23.9	25.1	26.3	27.5	28.6	29.8	31.0	32.2	33.4	34.6	35.8	37.0	38.2	39.5	40.7	41.9
13	14.8	16.0	17.1	18.3	19.5	20.6	21.8	23.0	24.2	25.4	26.6	27.8	29.0	30.2	31.4	32.6	33.8	35.0	36.2	37.5	38.7	39.9	41.2	42.4	43.6
14	16.1	17.3	18.5	19.7	20.9	22.1	23.3	24.5	25.7	26.9	28.1	29.3	30.5	31.7	33.0	34.2	35.4	36.7	37.9	39.1	40.4	41.6	42.9	44.2	45.4
15	17.5	18.7	19.9	21.1	22.3	23.5	24.7	25.9	27.2	28.4	29.6	30.9	32.1	33.3	34.6	35.8	37.1	38.4	39.6	40.9	42.2	43.4	44.7	46.0	47.3
16	18.9	20.1	21.3	22.6	23.8	25.0	26.2	27.5	28.7	30.0	31.2	32.5	33.7	35.0	36.3	37.5	38.8	40.1	41.4	42.7	44.0	45.3	46.6	47.9	49.2
17	20.3	21.6	22.8	24.1	25.3	26.6	27.8	29.1	30.3	31.6	32.9	34.1	35.4	36.7	38.0	39.3	40.6	41.9	43.2	44.5	45.9	47.2	48.5	49.8	51.2
18	21.8	23.1	24.3	25.6	26.9	28.1	29.4	30.7	32.0	33.3	34.6	35.9	37.2	38.5	39.8	41.1	42.4	43.8	45.1	46.5	47.8	49.2	50.5	51.9	53.2
19	23.3	24.6	25.9	27.2	28.5	29.8	31.1	32.4	33.7	35.0	36.3	37.6	39.0	40.3	41.6	43.0	44.3	45.7	47.1	48.4	49.8	51.2	52.6	54.0	55.4
20	24.9	26.2	27.5	28.8	30.1	31.5	32.8	34.1	35.4	36.8	38.1	39.5	40.8	42.2	43.6	44.9	46.3	47.7	49.1	50.5	51.9	53.3	54.7	56.1	57.6
21	26.5	27.9	29.2	30.5	31.8	33.2	34.5	35.9	37.3	38.6	40.0	41.4	42.8	44.1	45.5	46.9	48.4	49.8	51.2	52.6	54.1	55.5	56.9	58.4	59.9
22	28.2	29.5	30.9	32.3	33.6	35.0	36.4	37.7	39.1	40.5	41.9	43.3	44.8	46.2	47.6	49.0	50.5	51.9	53.4	54.8	56.3	57.8	59.3	60.8	62.3
23	29.9	31.3	32.7	34.1	35.5	36.8	38.3	39.7	41.1	42.5	43.9	45.4	46.8	48.3	49.7	51.2	52.7	54.2	55.6	57.1	58.6	60.2	61.7	63.2	64.7
24	31.7	33.1	34.5	35.9	37.3	38.8	40.2	41.7	43.1	44.6	46.0	47.5	49.0	50.5	52.0	53.5	55.0	56.5	58.0	59.5	61.1	62.6	64.2	65.8	67.3
25	33.6	35.0	36.4	37.9	39.3	40.8	42.2	43.7	45.2	46.7	48.2	49.7	51.2	52.7	54.3	55.8	57.3	58.9	60.5	62.0	63.6	65.2	66.8	68.4	70.0
26	35.5	36.9	38.4	39.9	41.4	42.8	44.3	45.9	47.4	48.9	50.4	52.0	53.5	55.1	56.7	58.2	59.8	61.4	63.0	64.7	66.3	67.9	69.6	71.2	72.9
27	37.4	38.9	40.4	42.0	43.5	45.0	46.5	48.1	49.6	51.2	52.8	54.4	56.0	57.6	59.2	60.8	62.4	64.1	65.7	67.4	69.1	70.8	72.5	74.2	75.9
28	39.5	41.0	42.6	44.1	45.7	47.3	48.8	50.4	52.0	53.6	55.2	56.9	58.5	60.2	61.8	63.5	65.2	66.9	68.6	70.3	72.0	73.7	75.5	77.3	79.0
29	41.7	43.2	44.8	46.4	48.0	49.6	51.2	52.8	54.5	56.1	57.8	59.5	61.2	62.9	64.6	66.3	68.0	69.8	71.5	73.3	75.1	76.9	78.7	80.5	82.4
30	43.9	45.5	47.1	48.7	50.4	52.0	53.7	55.4	57.1	58.8	60.5	62.2	64.0	65.7	67.5	69.3	71.0	72.9	74.7	76.5	78.3	80.2	82.1	84.0	85.9
31	46.2	47.9	49.5	51.2	52.9	54.6	56.3	58.1	59.8	61.6	63.3	65.1	66.9	68.7	70.5	72.4	74.2	76.1	78.0	79.9	81.8	83.7	85.7	87.6	89.6
32	48.7	50.4	52.1	53.8	55.6	57.3	59.1	60.9	62.7	64.5	66.3	68.2	70.0	71.9	73.8	75.7	77.6	79.5	81.5	83.5	85.4	87.5	89.5	91.5	93.6
33	51.2	53.0	54.8	56.5	58.3	60.2	62.0	63.8	65.7	67.6	69.5	71.4	73.3	75.2	77.2	79.2	81.2	83.2	85.2	87.3	89.3	91.4	93.6	95.7	97.8
34	53.9	55.7	57.6	59.4	61.3	63.1	65.0	67.0	68.9	70.8	72.8	74.8	76.8	78.8	80.8	82.9	85.0	87.1	89.2	91.4	93.5	95.7	97.9	100.2	102.4
35	56.8	58.6	60.5	62.4	64.4	66.3	68.3	70.3	72.3	74.3	76.3	78.4	80.5	82.6	84.7	86.9	89.1	91.3	93.5	95.7	98.0	100.3	102.6	105.0	107.3
36	59.8	61.7	63.7	65.7	67.7	69.7	71.7	73.8	75.9	78.0	80.1	82.3	84.5	86.7	88.9	91.2	93.5	95.8	98.1	100.5	102.9	105.3	107.7	110.2	112.7
37	62.9	65.0	67.0	69.1	71.2	73.3	75.4	77.6	79.8	82.0	84.2	86.5	88.8	91.1	93.4	95.8	98.2	100.6	103.1	105.6	108.1	110.7	113.3	115.9	118.6
38	66.3	68.4	70.6	72.7	74.9	77.1	79.4	81.6	83.9	86.2	88.6	91.0	93.4	95.8	98.3	100.8	103.4	105.9	108.6	111.2	113.9	116.6	119.4	122.2	125.0
39	70.0	72.2	74.4	76.7	78.9	81.3	83.6	86.0	88.4	90.9	93.4	95.9	98.4	101.0	103.6	106.3	109.0	111.8	114.6	117.4	120.3	123.2	126.1	129.2	132.2
40	73.8	76.2	78.5	80.9	83.3	85.7	88.2	90.8	93.3	95.9	98.5	101.2	103.9	106.7	109.5	112.4	115.3	118.2	121.2	124.3	127.4	130.5	133.7	137.0	140.3
41	78.0	80.5	83.0	85.5	88.0	90.6	93.3	95.9	98.7	101.4	104.3	107.1	110.0	113.0	116.0	119.1	122.2	125.4	128.7	132.0	135.4	138.8	142.3	145.9	149.5
42	82.6	85.2	87.8	90.5	93.2	96.0	98.8	101.7	104.6	107.6	110.6	113.7	116.9	120.1	123.4	126.7	130.1	133.6	137.2	140.8	144.5	148.3	152.2	156.1	160.2
43	87.6	90.4	93.2	96.0	99.0	101.9	105.0	108.1	111.2	114.5	117.8	121.1	124.6	128.1	131.7	135.4	139.1	143.0	147.0	151.0	155.2	159.4	163.8	168.2	172.8
44	93.1	96.1	99.1	102.2	105.4	108.6	111.9	115.3	118.7	122.3	125.9	129.6	133.4	137.4	141.4	145.5	149.7	154.1	158.5	163.1	167.9	172.7	177.7	182.9	188.2
45	99.3	102.5	105.8	109.2	112.6	116.2	119.8	123.6	127.4	131.4	135.4	139.6	143.9	148.3	152.9	157.6	162.4	167.4	172.6	178.0	183.5	189.2	195.1	201.2	207.5
46	106.3	109.8	113.4	117.2	121.0	125.0	129.1	133.3	137.6	142.1	146.7	151.5	156.5	161.6	167.0	172.5	178.2	184.2	190.4	196.8	203.5	210.5	217.8	225.4	233.3
47	114.3	118.3	122.4	126.6	130.9	135.4	140.1	145.0	150.0	155.3	160.7	166.4	172.3	178.5	185.0	191.8	198.9	206.4	214.2	222.4	231.0	240.0	249.5	259.5	270.0
48	123.9	128.4	133.1	137.9	143.0	148.3	153.9	159.7	165.8	172.2	178.9	186.0	193.5	201.4	209.8	218.7	228.2	238.2	248.9	260.3	272.3	285.1	298.7	313.0	328.2
49	135.5	140.8	146.4	152.3	158.5	165.0	172.0	179.3	187.2	195.6	204.6	214.3	224.7	235.9	248.1	261.3	275.5	290.9	307.6	325.5	344.8	365.4	387.3	410.6	435.2

IDEXX Quanti-Tray*/2000 MPN Table

# Large Wells Positive	# Small Wells Positive																							
	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
0	25.3	26.4	27.4	28.4	29.5	30.5	31.5	32.6	33.6	34.7	35.7	36.8	37.8	38.9	40.0	41.0	42.1	43.1	44.2	45.3	46.3	47.4	48.5	49.5
1	26.6	27.7	28.7	29.8	30.8	31.9	32.9	34.0	35.0	36.1	37.2	38.2	39.3	40.4	41.4	42.5	43.6	44.7	45.7	46.8	47.9	49.0	50.1	51.2
2	27.9	29.0	30.0	31.1	32.2	33.2	34.3	35.4	36.5	37.5	38.6	39.7	40.8	41.9	43.0	44.0	45.1	46.2	47.3	48.4	49.5	50.6	51.7	52.8
3	29.3	30.4	31.4	32.5	33.6	34.7	35.8	36.8	37.9	39.0	40.1	41.2	42.3	43.4	44.5	45.6	46.7	47.8	48.9	50.0	51.2	52.3	53.4	54.5
4	30.7	31.8	32.8	33.9	35.0	36.1	37.2	38.3	39.4	40.5	41.6	42.8	43.9	45.0	46.1	47.2	48.3	49.5	50.6	51.7	52.9	54.0	55.1	56.3
5	32.1	33.2	34.3	35.4	36.5	37.6	38.7	39.9	41.0	42.1	43.2	44.4	45.5	46.6	47.7	48.9	50.0	51.2	52.3	53.5	54.6	55.8	56.9	58.1
6	33.5	34.7	35.8	36.9	38.0	39.2	40.3	41.4	42.6	43.7	44.8	46.0	47.1	48.3	49.4	50.6	51.7	52.9	54.1	55.2	56.4	57.6	58.7	59.9
7	35.0	36.2	37.3	38.4	39.6	40.7	41.9	43.0	44.2	45.3	46.5	47.7	48.8	50.0	51.2	52.3	53.5	54.7	55.9	57.1	58.3	59.4	60.6	61.8
8	36.6	37.7	38.9	40.0	41.2	42.3	43.5	44.7	45.9	47.0	48.2	49.4	50.6	51.8	53.0	54.1	55.3	56.5	57.7	59.0	60.2	61.4	62.6	63.8
9	38.1	39.3	40.5	41.6	42.8	44.0	45.2	46.4	47.6	48.8	50.0	51.2	52.4	53.6	54.8	56.0	57.2	58.4	59.7	60.9	62.1	63.4	64.6	65.8
10	39.7	40.9	42.1	43.3	44.5	45.7	46.9	48.1	49.3	50.6	51.8	53.0	54.2	55.5	56.7	57.9	59.2	60.4	61.7	62.9	64.2	65.4	66.7	67.9
11	41.4	42.6	43.8	45.0	46.3	47.5	48.7	49.9	51.2	52.4	53.7	54.9	56.1	57.4	58.6	59.9	61.2	62.4	63.7	65.0	66.3	67.5	68.8	70.1
12	43.1	44.3	45.6	46.8	48.1	49.3	50.6	51.8	53.1	54.3	55.6	56.8	58.1	59.4	60.7	62.0	63.2	64.5	65.8	67.1	68.4	69.7	71.0	72.4
13	44.9	46.1	47.4	48.6	49.9	51.2	52.5	53.7	55.0	56.3	57.6	58.9	60.2	61.5	62.8	64.1	65.4	66.7	68.0	69.3	70.7	72.0	73.3	74.7
14	46.7	48.0	49.3	50.5	51.8	53.1	54.4	55.7	57.0	58.3	59.6	60.9	62.3	63.6	64.9	66.3	67.6	68.9	70.3	71.6	73.0	74.4	75.7	77.1
15	48.6	49.9	51.2	52.5	53.8	55.1	56.4	57.8	59.1	60.4	61.8	63.1	64.5	65.8	67.2	68.5	69.9	71.3	72.6	74.0	75.4	76.8	78.2	79.6
16	50.5	51.8	53.2	54.5	55.8	57.2	58.5	59.9	61.2	62.6	64.0	65.3	66.7	68.1	69.5	70.9	72.3	73.7	75.1	76.5	77.9	79.3	80.8	82.2
17	52.5	53.9	55.2	56.6	58.0	59.3	60.7	62.1	63.5	64.9	66.3	67.7	69.1	70.5	71.9	73.3	74.8	76.2	77.6	79.1	80.5	82.0	83.5	84.9
18	54.6	56.0	57.4	58.8	60.2	61.6	63.0	64.4	65.8	67.2	68.6	70.1	71.5	73.0	74.4	75.9	77.3	78.8	80.3	81.8	83.3	84.8	86.3	87.8
19	56.8	58.2	59.6	61.0	62.4	63.9	65.3	66.8	68.2	69.7	71.1	72.6	74.1	75.5	77.0	78.5	80.0	81.5	83.1	84.6	86.1	87.6	89.2	90.7
20	59.0	60.4	61.9	63.3	64.8	66.3	67.7	69.2	70.7	72.2	73.7	75.2	76.7	78.2	79.8	81.3	82.8	84.4	85.9	87.5	89.1	90.7	92.2	93.8
21	61.3	62.8	64.3	65.8	67.3	68.8	70.3	71.8	73.3	74.9	76.4	77.9	79.5	81.1	82.6	84.2	85.8	87.4	89.0	90.6	92.2	93.8	95.4	97.1
22	63.8	65.3	66.8	68.3	69.8	71.4	72.9	74.5	76.1	77.6	79.2	80.8	82.4	84.0	85.6	87.2	88.9	90.5	92.1	93.8	95.5	97.1	98.8	100.5
23	66.3	67.8	69.4	71.0	72.5	74.1	75.7	77.3	78.9	80.5	82.2	83.8	85.4	87.1	88.7	90.4	92.1	93.8	95.5	97.2	98.9	100.6	102.4	104.1
24	68.9	70.5	72.1	73.7	75.3	77.0	78.6	80.3	81.9	83.6	85.2	86.9	88.6	90.3	92.0	93.8	95.5	97.2	99.0	100.7	102.5	104.3	106.1	107.9
25	71.7	73.3	75.0	76.6	78.3	80.0	81.7	83.3	85.1	86.8	88.5	90.2	92.0	93.7	95.5	97.3	99.1	100.9	102.7	104.5	106.3	108.2	110.0	111.9
26	74.6	76.3	78.0	79.7	81.4	83.1	84.8	86.6	88.4	90.1	91.9	93.7	95.5	97.3	99.2	101.0	102.9	104.7	106.6	108.5	110.4	112.3	114.2	116.2
27	77.6	79.4	81.1	82.9	84.6	86.4	88.2	90.0	91.9	93.7	95.5	97.4	99.3	101.2	103.1	105.0	106.9	108.8	110.8	112.7	114.7	116.7	118.7	120.7
28	80.8	82.6	84.4	86.3	88.1	89.9	91.8	93.7	95.6	97.5	99.4	101.3	103.3	105.2	107.2	109.2	111.2	113.2	115.2	117.3	119.3	121.4	123.5	125.6
29	84.2	86.1	87.9	89.8	91.7	93.7	95.6	97.5	99.5	101.5	103.5	105.5	107.5	109.5	111.6	113.7	115.7	117.8	120.0	122.1	124.2	126.4	128.6	130.8
30	87.8	89.7	91.7	93.6	95.6	97.6	99.6	101.6	103.7	105.7	107.8	109.9	112.0	114.2	116.3	118.5	120.6	122.8	125.1	127.3	129.5	131.8	134.1	136.4
31	91.6	93.6	95.6	97.7	99.7	101.8	103.9	106.0	108.2	110.3	112.5	114.7	116.9	119.1	121.4	123.6	125.9	128.2	130.5	132.9	135.3	137.7	140.1	142.5
32	95.7	97.8	99.9	102.0	104.2	106.3	108.5	110.7	113.0	115.2	117.5	119.8	122.1	124.5	126.8	129.2	131.6	134.0	136.5	139.0	141.5	144.0	146.6	149.1
33	100.0	102.2	104.4	106.6	108.9	111.2	113.5	115.8	118.2	120.5	122.9	125.4	127.8	130.3	132.8	135.3	137.8	140.4	143.0	145.6	148.3	150.9	153.7	156.4
34	104.7	107.0	109.3	111.7	114.0	116.4	118.9	121.3	123.8	126.3	128.8	131.4	134.0	136.6	139.2	141.9	144.6	147.4	150.1	152.9	155.7	158.6	161.5	164.4
35	109.7	112.2	114.6	117.1	119.6	122.2	124.7	127.3	129.9	132.6	135.3	138.0	140.8	143.6	146.4	149.2	152.1	155.0	158.0	161.0	164.0	167.1	170.2	173.3
36	115.2	117.8	120.4	123.0	125.7	128.4	131.1	133.9	136.7	139.5	142.4	145.3	148.3	151.3	154.3	157.3	160.5	163.6	166.8	170.0	173.3	176.6	179.9	183.3
37	121.3	124.0	126.8	129.6	132.4	135.3	138.2	141.2	144.2	147.3	150.3	153.5	156.7	159.9	163.1	166.5	169.8	173.2	176.7	180.2	183.7	187.3	191.0	194.7
38	127.9	130.8	133.8	136.8	139.9	143.0	146.2	149.4	152.6	155.9	159.2	162.6	166.1	169.6	173.2	176.8	180.4	184.2	188.0	191.8	195.7	199.7	203.7	207.7
39	135.3	138.5	141.7	145.0	148.3	151.7	155.1	158.6	162.1	165.7	169.4	173.1	176.9	180.7	184.7	188.7	192.7	196.8	201.0	205.3	209.6	214.0	218.5	223.0
40	143.7	147.1	150.6	154.2	157.8	161.5	165.3	169.1	173.0	177.0	181.1	185.2	189.4	193.7	198.1	202.5	207.1	211.7	216.4	221.1	226.0	231.0	236.0	241.1
41	153.2	157.0	160.9	164.8	168.9	173.0	177.2	181.5	185.8	190.3	194.8	199.5	204.2	209.1	214.0	219.1	224.2	229.4	234.8	240.2	245.8	251.5	257.2	263.1
42	164.3	168.6	172.9	177.3	181.9	186.5	191.3	196.1	201.1	206.2	211.4	216.7	222.2	227.7	233.4	239.2	245.2	251.3	257.5	263.8	270.3	276.9	283.6	290.5
43	177.5	182.3	187.3	192.4	197.6	202.9	208.4	214.0	219.8	225.8	231.8	238.1	244.5	251.0	257.7	264.6	271.7	278.9	286.3	293.8	301.5	309.4	317.4	325.7
44	193.6	199.3	205.1	211.0	217.2	223.5	230.0	236.7	243.6	250.8	258.1	265.6	273.3	281.2	289.4	297.8	306.3	315.1	324.1	333.3	342.8	352.4	362.3	372.4
45	214.1	220.9	227.9	235.2	242.7	250.4	258.4	266.7	275.3	284.1	293.3	302.6	312.3	322.3	332.5	343.0	353.8	364.9	376.2	387.9	399.8	412.0	424.5	437.4
46	241.5	250.0	258.9	268.2	277.8	287.8	298.1	308.8	319.9	331.4	343.3	355.5	368.1	381.1	394.5	408.3	422.5	437.1	452.0	467.4	483.3	499.6	516.3	533.5
47	280.9	292.4	304.4	316.9	330.0	343.6	357.8	372.5	387.7	403.4	419.8	436.6	454.1	472.1	490.7	509.9	529.8	550.4	571.7	593.8	616.7	640.5	665.3	691.0
48	344.1	360.9	378.4	396.8	416.0	436.0	456.9	478.6	501.2	524.7	549.3	574.8	601.5	629.4	658.6	689.3	721.5	755.6	791.5	829.7	870.4	913.9	960.6	1011.2
49	461.1	488.4	517.2	547.5	579.4	613.1	648.8	686.7	727.0	770.1	816.4	866.4	920.8	980.4	1046.2	1119.9	1203.3	1299.7	1413.6	1553.1	1732.9	1986.3	2419.6	>2419.6

Appendix 5:
Laboratory Maintenance Logs

Autoclave Cleaning Log

Date Used	Number of Cycles	Date Cleaned	Initials
EX: 6/11/24	4	5/20/2024	PT

IDEXX Sealer Cleaning Log

Date	Initials	Notes

Date	Initials	Incubator (1 or 2)	Starting Temp (°C)	Samples in Temp (°C)	Time @ 41°C	Samples Out Temp (°C)	Readers Initials
EXAMPLE	JS	1	41.0	39.0	12:38 PM	41.0	AA
	JS	2	41.0	39.0	1:12 PM	41.0	AA
6/17							
6/24							
7/1							
7/8							
7/15							
7/22							
7/29							
8/5							
8/12							
8/19							
8/26							
9/3							
9/9							
9/16							
9/23							

Positive Control Record

Date	**Initials**	**Results**	Reagent Lot	Bacteria Lot

Sample Count for tracking Inventory			
Date	Early	Late	Total
5/20			
6/3			
6/10			
6/17			
6/24			
7/1			
7/8			
7/15			
7/22			
7/29			
8/5			
8/12			

8/19			
8/26			
9/3			
9/9			
9/16			
9/23			
9/30			
10/7			
10/21			
11/4			
11/18			
12/16			

Appendix 6:
Field Sampling Datasheet

Water Sampling Data Sheet

Tested by: **Date (mm/dd/yy):** **Rain in last 24 hrs:** Y / N **48 hrs:** Y / N

Air Temp (°F): **Weather:** sunny, partly cloudy, overcast, fog, light rain, heavy rain, snow

Wind Speed (mph): **Wind Direction (where wind is coming FROM):** N, NE, E, SE, S, SW, W, NW

Time	**Site Name**	**Water Temp (°F)**	**Wave Height**	**Tide (pick 1)** low, high, in, out, n/a	**Comments, Observations, and Weather Changes**	**Fluorescent Wells**	**MPN**	**Dilution Factor**	**Enterococcus cfu/100 mL**
						Big: Small:		10	
						Big: Small:		10	
						Big: Small:		10	
						Big: Small:		10	
						Big: Small:		10	

Relinquished by: _____
Initials, Time

Lab Tech:

Start Incubation:

Wave Heights: < 1 ft, 1 – 2 ft, 2 – 4 ft, 4 – 6 ft, 6 – 9 ft

Received by: _____
Initials, Time

Control:

Score Time:

Precipitation:_____
Y/N, Rainfall

Appendix 7:
Checklists for Sampling and Lab Practical

Training a New Intern (DOC)

For Staff

- [ ] Provide the incoming intern with procedures and checklists to review prior to the first BWTF day.
- [ ] Demonstrate sampling
- [ ] Demonstrate lab processing
- [ ] Demonstrate autoclaving
- [ ] Demonstrate reading and reporting samples

Sampling Practice

- [ ] Did they sanitize their hands before and after?
- [ ] Are they careful not to touch the inside of the bag once open?
- [ ] Do they enter the water to knee-depth, where possible, careful not to disturb the sediment?
- [ ] Do they collect the sample on an incoming wave, 6 inches below the surface?
- [ ] Did they collect 100 mL?
- [ ] Did they check to ensure the sample is fully sealed and immediately put on ice?

Lab Processing Practice

- [ ] Did they check the labs sheet for …
  - [ ] Time sample was collected/highlighted for early sample
  - [ ] That chain of custody was kept
- [ ] Pull correct bottles for sites
- [ ] Put 90 mL of DI water into bottle
- [ ] Add reagent (check expirations and use the correct box)
- [ ] Get correct sample from cooler
- [ ] Inverts samples gently 2-3 times
- [ ] Careful not to touch the inside of the mixing bottle or lid, or end of pipette
- [ ] Pipette 10 mL of sample into bottle correctly, without touching the outside of the bottle
- [ ] Mixes bottles gently
- [ ] Pours bottle into tray
- [ ] Seals tray and labels
- [ ] *For staff note the sites they did for reading results and records*

Results:
Pass/Fail
Intern Name:
Date:

Opening Checklist

- ☐ PBK arrives 10:00 am, Surfrider 11:00 am
- ☐ Turn on incubator, sealer, and lights
- ☐ Sanitize table
- ☐ Sanitize hands just before pouring and pipetting, and continue to sanitize every ~10 samples
- ☐ Pour Control: 100 mL of DI water and reagent (bottle C)
- ☐ Pour Bottles: 90mL DI water and reagent for Bottles 1 to 30 and 50, 51 and 52
- ☐ Check for this sampling events replicate site - see list on wall prep rep bottle 90mL DI water and reagent
- ☐ **If Surfrider Samples have arrived:** begin processing early samples
- ☐ **If Surfrider Samples have not arrived:** keep pouring bottles
- ☐ If volunteers drop off samples, sign chain of custody
- ☐ Highlight data sheets for early samples (up to and including 9:30 am)
- ☐ Begin organizing samples in coolers – it's easier to separate early and late into two separate coolers
- ☐ Put/organize no more than 10 early samples into gray bin
- ☐ Begin processing early samples, going in order to track your progress and make it easier for the person reading samples the next day
- ☐ When first 15 bottles fill a gray tub, someone can bring to kitchen for rinsing bottles and caps and place on drying rack while second person continues to process early samples
- ☐ Stacked sealed IDEXX trays by the incubator
- ☐ **Remember that Early Samples need to be in before 1:00 pm**
- ☐ When all early samples have been processed place IDEXX trays into the incubator
- ☐ One person can continue to rinse early bottles and start autoclaving first 15 bottles while one person continues to pipette late samples
- ☐ Note the incubation time on data sheets and lab processors names
- ☐ Record incubator temp on temp log sheet in BWTF Binder
- ☐ Record number of early samples processed on sample count sheet BWTF Binder
- ☐ When the PBK and Surfrider main coolers arrive please check and record temp blank, less than or equal to 50 F

Initial:
Initial:
Date:

Closing Checklist

- ☐ Organize late samples
- ☐ Make sure corresponding bottles are poured
- ☐ Begin processing late samples
- ☐ **Late samples must be in before 3:00 pm**
- ☐ Seal late samples in IDEXX trays
- ☐ Place all late sample IDEXX trays in the incubator
- ☐ Note second incubation time and lab processor name on data sheets
- ☐ Record incubator temperature
- ☐ Record number of late samples processed
- ☐ Bring dirty bottles to the kitchen to rinse bottles and caps, and all pipettes in three boxes (even those you didn't use that day)
- ☐ Help prep autoclave trays if not complete
- ☐ Record the number of cycles the autoclave ran
- ☐ Look through data sheets for completeness: date, recent rain, tides, and bottom section complete. Stack them in numerical order and leave by the blacklight setup.
- ☐ Clean lab
    - ☐ Glassware back on drying rack
    - ☐ Pens, highlighter, and pipettes back in glass
    - ☐ Gray tubs set out to air dry
    - ☐ Leave one empty pipette box for the next round
    - ☐ Any extra enterolert or IDEXX trays in closet with open bags clipped
    - ☐ Sterilized bottles put back in the closet in numerical order
    - ☐ Return PBK ice pack to freezer
    - ☐ Wipe down the lab table and push chairs back in
    - ☐ Check to make sure lab window is closed
    - ☐ Check around for your personal belongings
    - ☐ Turn sealer and lights off
    - ☐ Remove recyclables to correct bins
    - ☐ Dispose of used trays (once a month)
    - ☐ Surfrider: leave the sample pole and cooler in the lobby
    - ☐ If the last person in the office, turn all office lights off, close the living room door and lock the deadbolt of the front door and return key

Initial:
Initial:
Date:

(temperature blank) or the entire sampling event (negative control) will be disregarded for that sampling event.

Reporting

Reports

The sample records and the QC samples records will be on data sheets as seen in Appendix 1. The sample records will be partially filled out by sample collectors in the field and the remaining entries will be recorded by the person reading the results in the lab. The data sheets will be filled out for each sample at each sampling event and stored in the lab.

The equipment calibrations and maintenance records will be filled out by one of the Blue Water Task Force leads and stored in a binder in the lab. These will be filled out when annual maintenance is completed.

All data will be posted on the Surfrider Foundation's Blue Water Task Force website after every sampling event, typically within 36 hours of sample collection. Data entry includes enterococcus bacteria results, sample location, time of collection, weather conditions, and other physical parameters measured in the field and recorded on the sampling data sheets. Any notes that condition the data or flag any potential issues from data reconciliation will also be attached to each data record in the Blue Water Task Force website. Bacteria results are also posted on the Peconic Baykeeper and CCOM's websites. Surfrider Eastern Long Island and CCOM will send out a water quality report email with the most recent bacteria results to their mailing list of subscribers. All three organizations also share results using their social media accounts. Each time the results are shared via social media or email, we include a statement that clarifies exactly what is being tested for and compares data to water quality criteria established by the NYSDOH for recreational waters.

Every year, the Surfrider Foundation reviews and analyzes the data from the previous calendar year and presents data statistics and trends in an annual water quality report. This report is shared as described above for the weekly/monthly water quality reports. Additionally, a press release will be issued for the release of the annual report. Staff from the partner organizations present the findings of the report, including data trends, in presentations to community groups and local stakeholders such as town trustees, harbor committees, village and town officials, and resource management staff.