

**Attachment 2a**

**Public Comments and Agency Responses**

We received 162 public comments about this ICR Clearance. The ID in regulations.gov is CDC-2019-0079-0068. The comments and responses, where appropriate, are listed below.

There were 3 substantive comments for which CDC drafted responses for OMB to send.

Other categories of comments and CDC responses:

- 16 comments addressed available water quality, nutrient, and water flow data.
  - CDC is working with Florida entities to identify the next bloom and implement the study in an area with an identified bloom
- 13 comments were about red tide.
  - The CDC response: Thank you for your interest in our study of exposure to cyanobacterial harmful algal blooms. CDC appreciates your concerns about the health effects from exposure to red tides, but we will not include exposures to the marine algal toxin, brevetoxin, in this study.
- 13 comments suggested CDC expand the study population to include nursery workers and others and not target fishers and to address this as an environmental justice issue.
  - CDC expanded the study population to include all those with extensive exposure (e.g., spend at least 2 hours outdoors each day).
- 8 comments contained the same text, suggesting a specific group offered response points
  - These comments noted the importance of doing the study to address gaps in our knowledge about the health effects of human exposures to CyanoHABs
- 8 comments addressed a recent study by Dr. Adam Schaefer and encouraged CDC to continue to study the issue more.
- 4 comments addressed pet dog deaths during the last blooms. Questions about pet health were added to the Symptom Survey.
- 3 comments asked that CDC expand the study area.
  - CDC expanded the study area to include rivers and estuaries.
- 2 comments addressed airborne exposures. Collecting and analyzing air samples is integrated into the project as a way to assess exposure.
- 2 comments noted the need for long-term exposure and health data. CDC plans to collect data across the months-long bloom season to see if there are temporal trends in biomonitoring or environmental data.

Type of Comment	Submitter Information	Comment	Response
<b>Public submission</b>	Robin Williams <a href="mailto:robinftaubw@gmail.com">robinftaubw@gmail.com</a> Received: March 11, 2016 Status: Posted Posted: November 11, 2019	Please add the uploaded file to my previous submission which states:  "It is critical that epidemiological studies be conducted on the incidence of neurodegenerative and other diseases in areas where individuals have repeated exposures to red tide and its aerosols. Are	No reply needed.

	Tracking No. 1k3-9d2d-jao3	<p>there clusters? Is the incidence in parts of Florida greater than across the US and globally? Far greater resources are needed to study the health effects and to intervene to reduce the pollution that has resulted in the unnatural levels of red tide. All over Florida beaches are postings indicated that red tide is "naturally occurring." That is grossly misleading. While protist microorganisms like <i>Karenia brevis</i> have been around for over a billion years, the levels and the length of time their populations are running amuck in coastal waters is anything but natural. There is a perfect storm of human caused pollutants and climate change that is to blame.":</p> <p>While red tide is caused by <i>Karenia brevis</i> and not cyanobacteria, it is also associated with neurological effects, both short term and lesser studied long term effects. Millions of people are at significant health risk from repeated exposures to coastal, estuarine and inland freshwater cyanobacterial blooms and coastal <i>Karenia brevis</i> blooms. Alarms should be sounding and a large scale effort is needed for research, epidemiology, and corrective environmental action.</p>	
<b>Public submission</b>	<p>Julia Smith No email provided Status: Posted Posted: November 13, 2019 Tracking No. 1k3-9d9r-93d8</p>	<p>Aerosols from cyanobacterial blooms affect everyone and everything. This is especially critical to those living in and near the water. This needs to be reviewed and tested for all populations living near and in the water and the source for the blooms needs to be eliminated (likely Okechobee). This is a man created issue that is damaging to all.</p>	No reply needed.
<b>Public Submission</b>	<p>Katrina Muros No email provided Status: Posted Posted: October 17, 2019 Tracking No. 1k3-9csd-mfwe</p>	<p>While study of cyanobacteria is certainly needed and welcome, I have to question the selection of Lake Okeechobee as the target for this study. The selection of Lake Okeechobee appears to be for political rather than scientific reasons.</p> <p>During the summer of 2019, algal blooms were minimal in the lake, and most were mixtures of various species of algae and cyanobacteria with no toxins or barely detectable low levels of toxins. On of the algae experiments planned by USACOE had to be canceled because they could not find a suitable blue green algal bloom to test.</p> <p>Even when there are algal blooms on the lake, the toxin levels have been low and the algae is not always on the surface where it could be aerosolized. Since this study proposed to look at the effects of</p>	No reply needed.

		<p>exposure to aerosolized toxins, it might be better to study a lake that has more surface blooms. NOAA imagery of the Big O shows algae concentration in the water column.</p> <p>It was obvious even to the casual observer that the algae blooms in Lake Okeechobee in 2016, 2017 and 2018 were not as dense or persistent as the blooms in the coastal waterways. In the lake, algal blooms are often featherly and ephemeral. The cyanobacteria may rise and fall in the water column. Even when National Atmospheric and Oceanic Administration (NOAA) imagery indicated a concentration of cyanobacteria in a particular part of the lake, boaters reported they could not find any blooms.</p> <p>This year, increased monitoring stations were added to collect more samples from Lake Okeechobee. I suggest the CDC review the water quality data from SFWMD, NOAA and the Corps of Engineers from the summer of 2019 before going forward with funding this study. The money might be put to better use studying a different lake.</p>	
<b>Public Submission</b>	<p>Spencer Miller  spencemiller@me.com  Status: Posted  Posted:11/13/29  Tracking No. 1k3-9d9r-p2k1</p>	<p>The CDC should most certainly take up a study on the effects of Microcystin on populations along the St. Lucie. As a potential ALS and Alzheimer's inducing neurotoxin, it is negligent to do anything but attempt to learn more about how to help the affected populations.</p>	No reply needed.
<b>Public Submission</b>	<p>Anonymous  No email provided  Status: Posted  Posted 11/6/2019  Tracking No. 1k3-9d54-znp9</p>	<p>interesting to look at nursery workers who may be exposed through aerosols of HABs from watering systems at nurseries that experience algae blooms in their holding ponds. I have seen this occur first hand and wondered about the health effects on those working at the nursery. HAB aerosols is a great study topic. Glad you are intending to look at it in more detail.</p>	No reply needed.
<b>Public Submission</b>	<p>Karen Regan  <a href="mailto:Kmoonshadow@gmail.com">Kmoonshadow@gmail.com</a>  Status: Posted  Posted 10/9/19  Tracking No. 1k3-9cn3-3ihv</p>	<p>Our family lives in Matlacha Isles, Lee County, Florida, close to the Gulf near Ft. Myers. Last year, my whole family, including myself, my husband and my daughter suffered intense respiratory symptoms all during the red tide episodes. We did not go to the beach and seldom even went outdoors, and always wore respiratory masks when we did, and often had to wear them indoors as well. We ran our air conditioner with hepa filters and had two additional hepa air purifying machines in the house. My husband still experienced symptoms so</p>	No reply needed.

		severe, he had to call an ambulance in the early hours of the morning and spend several days in the hospital to restore his breathing. I believe the toxic algae is definitely airborne.	
<b>Public Submission</b>	Stephan Widmeyer dmeier@gmailcom Status: Posted Posted 11/13/19 Tracking No. 1k3-9d9r-z43h	As these Cyanobacteria blooms increase in both frequency and intensity, giving high priority to the study of adverse health consequences becomes exponentially more critical.	No reply needed.
<b>Public Submission</b>	Laurie Lorch <a href="mailto:lelorch@bellsouth.net">lelorch@bellsouth.net</a> Status: Posted Posted 11/13/19 Tracking No. 1k3-9d9r-biso	<p>We dont yet know the extent of harm caused by extended exposure to aerosolized toxins from these blooms, but past studies show concern for long-term exposure and health concerns.</p> <p>A study hosted by Harbor Branch Oceanographic Institute last summer resulted in positive tests for detectable levels of microcystin, the toxin produced by cyanobacteria, in the nasal passages of every volunteer subject tested living along the St. Lucie River.</p> <p>Information on aerosol exposure and toxicity is critical in the areas around Lake Okeechobee where extensive cyanobacterial blooms have become a regular occurrence. Since this is also happening in many other states, these findings will be of national importance.</p> <p>The lack of information on exposure and long-term health risk has led to inconsistency in public warnings that exposes the public with long-term consequences.</p>	No reply needed.
<b>Public Submission</b>	Ada Shissler No email Status: Posted Posted 11/18/18 Tracking No. 1k3-9dda-75q2	<p>I am a member of a very active women's kayaking group. We kayak in local waters weekly and are acutely aware of changes in our water quality. We see the effects on both sealife and wildlife, as well as on ourselves.</p> <p>Our concern is the cyobacteria that becomes airborne. If winds can blow dust from the Sahara that affects red tide, the wind can surely blow the cyobacteria from Cape Coral to Ft. Myers, Naples, Sanibel, Captiva, Tampa, Miami, and all of SW Florida with devastating effects on the hua population</p>	No reply needed.
<b>Public Submission</b>	Anonymous No email	This and all relevant testing should be a required priority SOP for monitoring and managing water quality and contamination / pollution	No reply needed.

	<p>Status: Posted          Posted 11/13/19          Tracking No. 1k3-9d9r-dv9q</p>	<p>effects on people, wildlife and the environment. It is insanity bordering on criminal that natural habitat and resources are allowed to be decimated and regulatory entities / agencies are unauthorized, unable or unwilling to affect change. During algae blooms we were unable to go outside our home because of the discomfort from breathing the fumes. I'm confused and disheartened why this is even a debate.</p>	
<b>Public Submission</b>	<p>David Poscich  <a href="mailto:d.poscich@att.net">d.poscich@att.net</a>          Status: Posted          Posted 10/29/19          Tracking No. 1k3-9d0f-x2t4</p>	<p>The algae blooms have impacted the ability of my family and I to picnic near the Indian River Lagoon in Martin Co, FL and to launch and recover a boat.</p>	No reply needed.
<b>Public Submission</b>	<p>Donald Davis          No email          Status: Posted          Posted 11/13/19          Tracking No. k2w-6i6e-xb6v</p>	<p>We don't yet know the extent of harm caused by extended exposure to aerosolized toxins from these blooms, but past studies show concern for long-term exposure and health concerns.</p> <p>A study hosted by Harbor Branch Oceanographic Institute last summer resulted in positive tests for "detectable levels" of microcystin, the toxin produced by cyanobacteria, in the nasal passages of every volunteer subject tested living along the St. Lucie River.</p> <p>Information on aerosol exposure and toxicity is critical in the areas around Lake Okeechobee where extensive cyanobacterial blooms have become a regular occurrence. Since this is also happening in many other states, these findings will be of national importance.</p>	No reply needed.
<b>Public Submission</b>	<p>Shauna H          No email          Status: Posted          Posted 11/13/19          Tracking No. 1k3-9d9x-9jk7</p>	<p>Please consider conducting this study to see the effects these algae blooms are having on our community. Each year members of our community, our families, and tourists are exposed to these blooms. We must find out if there are any adverse effects so that we can work towards mitigation. It already affects numerous businesses, native species, and residents. We need to know the extent of this exposure.</p> <p>Thank you for hearing our concerns and your consideration of this study</p>	No reply needed.
<b>Public Submission</b>	<p>Aileen Joachim-L'Etiole          No email          Status: Posted          Posted 11/13/19</p>	<p>Issues around our water are of vital importance. Health issues are on the rise due to the toxic level in which we consume and live. Not only do we as citizens need to curtail our own practices contributing to our destruction of the planet but those of you in the scientific community</p>	No reply needed.

	Tracking No. 1k3-9d9s-cibk	need to step up and lend your expertise to help guide this global process of cleaning up, protecting, and preserving all living parts of Our Mother Earth	
<b>Public Submission</b>	Kelly Lee Brennan <a href="mailto:Kelly.lee.brennan@gmail.com">Kelly.lee.brennan@gmail.com</a> Status: Posted Posted 10/23/2019 Tracking No. 1k3-9cvs-1a0a	I moved to Stuart July 2018 and saw a request for volunteers to submit blood, urine and nasal swab to test for mycrostycin exposure. I went to the site and scientists from FAU took samples. I had only been indoors unpacking the two weeks prior to the study. I was informed within hours that 100% of the 70 study participants had tested positive for nasal exposure. I live within 1 mile of the St. Lucie Estuary and was shocked I had been exposed by breathing indoor conditioned air and going to my community pool less than 10 times. I had not been on a boat. I had not gone to the beach. I was still contaminated. Scientific fact.	No reply needed.
<b>Public Submission</b>	Gregory Stouffer No email Status: Posted Posted 11/13/19 Tracking No. 1k3-9d9r-bla5	Please examine exposure and health effects of aerosols from cyanobacterial blooms on highly exposed populations during the next active bloom season.	No reply needed.
<b>Public Submission</b>	Aymee Laurain No email Status: Posted Posted 11/13/19 Tracking No. 1k3-9d9o-2pzt	This testing would be vital for not just the health of humans but also wildlife living within the area. Having more supporting evidence on how this crisis is impacting local communities can only benefit our state and pressure more regulations that can mitigate the problem.	No reply needed.
<b>Public Submission</b>	Donna Melzer <a href="mailto:DonnaSMelzder@gmail.com">DonnaSMelzder@gmail.com</a> Status: Posted Posted 11/18/19 Tracking No. 1k3-9ddp-xqw0	I urge the CDC to promptly start a study regarding the cyanobacteria blooms, algal blooms, risk to health:  1. Evaluate whether the proposed collection of information is necessary for the proper performance of the functions of the agency, including whether the information will have practical utility;  The new, important federal legislation regarding Lake Okeechobee operation including a factor of human health is largely because of the algal bloom health concerns. Algal blooms are becoming an issue worldwide, and the CDC and the Corps need to be on the prevention, not the "whoops we missed that " or "sorry for the epidemic of serious health problems we missed that..." or "the study was too complex..." CDC has the mandate to address epidemic health issues. Lake	No reply needed.

		<p>Okeechobee water dumps into Martin County waterways and we are exposed to cyanobacteria blooms.</p> <p>A CDC informational study is critical in the area around Lake Okeechobee where extensive cyanobacteria blooms have become a regular occurrence. The study is of national importance because of the Everglades and tourism and local health issues. But also because many other states are also facing the extensive cyanobacteria blooms. We hope you will choose to be proactive because the lack of information on exposure to these cyanobacteria blooms is a long-term health risks for many nationwide. Public health officials have been inconsistent with warnings and the public, the children, to exposures that will have long-term consequences from the lack of information. Affect on the health of so many will also affect the future national economies and medical care costs for the nation.</p> <p>We have dogs that die after - and believed to be a result of - exposure to the blooms. While the Florida Health Department focuses on susceptible individuals and direct contact, we know the toxins are aerosolized. The toxins are found in nasal passages and lungs for those who have not made contact with blooms.</p> <p>We need more information on what toxins become aerosolized and if there is sometimes enough toxin in the air to create a health risk. Also, the citizens of the United States need to know if there are cumulative effects when such toxins, directly and indirectly impact areas repeatedly over time.</p> <p>2. Evaluate the accuracy of the agency's estimate of the burden of the proposed collection of information, including the validity of the methodology and assumptions used;</p> <p>We appreciate that collecting a representative sample will be challenging. We understand that the toxicity of the cyanobacteria has become a political issue with some public officials denying that the blooms are toxic in Lake Okeechobee.</p>	
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		<p>Yet data from FDEP shows toxins are common; federal legislation is supporting the need to evaluating the health risks of these blooms.</p> <p>Employees who are required to be near blooms without protective gear on a daily basis would be the best subjects. State employees who regularly inspect and test blooms and do not wear protective gear would be ideal subjects. We do have veterinarian reports, emergency room reports - a local ER Director provided testimony at the Corps. meetings.</p> <p>Both Florida Atlantic University and Florida Gulf Coast University have done studies on inhalation of microcystin. Data from those studies should be used to determine appropriate samples.</p> <p>3. Enhance the quality, utility, and clarity of the information to be collected; and</p> <p>The study and its sampling methods should make clear whether collection of data from those with a high likelihood of regular aerosol exposure based on where people work, do business or life. OR whether it is simply a sample of those who have some degree of aerial exposure that would reflect the general populace. What is most needed is a worst-case study that allows those who must be regularly exposed to know if their are risks involved.</p> <p>Grandparents and parents have a growing concern regarding taking children to the beach or to the rivers or even outside in areas where there may be air-borne toxins.</p> <p>4. Minimize the burden of the collection of information on those who are to respond, including through the use of appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology, e.g., permitting electronic submissions of responses.</p> <p>FDEP and Martin County have some data, veterinarians have data,</p>	
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<b>Public Submission</b>	<p>Catherine Martinez  <a href="mailto:Csmartinez1998@gmail.com">Csmartinez1998@gmail.com</a>          Status: Posted          Posted 11/18/19          Tracking No. 1k3-9dde-8djg</p>	<p>As a resident of Belle Glade who visits the lake regularly to hike I think it is extremely important to have a scientific look at possible health effects from the cyanobacterial blooms.in Lake Okeechobee. The next step is to determine the source of the blooms and come up with effective strategies to prevent them.</p>	No reply needed.
<b>Public Submission</b>	<p>National Algae Association          No email          Status: Posted          Posted 11/13/19          Tracking No. 1k3-9d9r-op4w</p>	<p>Decades of algae bloom and HAB research, studies, testing and monitoring alone have proven not to fix any of these devastating environmental problems. Aerosols from cyanobacteria bloom exposure will continue to affect the air quality along coastlines of lakes and oceans. Unless commercial algae bloom and HAB and the toxic air remediation is immediately deployed these problems will continue to get worse every year affecting fishing, swimming, real estate values, tourism, local economies and risks to humans and animals.</p> <p>To combat these many different problems NAA is bringing together an army of commercially-minded algae researchers (not looking for their next research grant) and remediation (bloom and air) technology companies with 'proven' outside the lab, scalable, economically feasible and do no harm remediation technologies in open collaboration to attack these many devastating environmental problems. Without pointing fingers, using various proven technologies to get real reduction and remediation results taking a holistic approach. #solvealgaeblooms #algaebloomremediation</p>	No reply needed.
<b>Public Submission</b>	<p>Sandy Keith  <a href="mailto:keithinosprey@gmail.com">keithinosprey@gmail.com</a>          Status: Posted          Posted 11/13/19</p>	<p>We have raised our family here in Sarasota County and are very concerned about the short and long term affects of exposure to cyanobacterial blooms and feel STRONGLY that its affects should be tested on humans and animals and marine life immediately and ALL</p>	No reply needed.

	Tracking No. 1k3-9d9t-vicg	results made public. Dogs died and we saw last year down south of us where pregnant women were living on boat in completely contaminated water ways. Notices of the risks should not only be posted at beaches and marinas but better coverage on the news.	
<b>Public Submission</b>	Alex Wooley No email Status: Posted Posted 11/13/19 Tracking No. 1k3-9d9v-1qh1	We need cleane water! Our children deserve it so they can grow up in the beautiful Florida that I did!	No reply needed.
<b>Public Submission</b>	Linda No email Status: Posted Posted 10/31/19 Tracking No. 1k3-9d1s-kwqv	In September of 2018 we moved to a new home in the Palmer Ranch area of south Sarasota, 3 miles from Siesta Key Beach. Sept 2018 was the height of Sarasota's Red Tide outbreak. It coincided with my acute onset of severe eye problems in which both of my eyes were completely red and felt as though something was inside them every single day for months.I have documentation from two different ocular physicians in Sarasota that concluded my condition was most likely attributable to cyanobacteria. I was put on steroid eye drops for two weeks. My eye condition cleared up, only to come raging back once the steroid drops were discontinued. I was in absolute misery. It should be noted that I am an extremely healthy person consuming a very strict nutritional profile consisting of pro-biotic yogurt, whole grains, fruits and vegetables. I do not eat meat of any kind, and rarely eat fish. I drink brewed coffee (black) in the morning, bottled water throughout the day, and on occasion, have a Gatorade with lowered sugar. I do not smoke, I do not drink alcohol, nor do any type of drugs. I work out with a personal trainer and have been for 7 consecutive years, most weekdays. Yet the Red Tide's cyanobacteria presented itself through my eyes and made my life miserable for the duration of bloom	No reply needed.
<b>Public Submission</b>	Joseph Cummins <a href="mailto:jpc102762@gmail.com">jpc102762@gmail.com</a> Status: Posted Posted 11/13/19 Tracking No. 1k3-9d9r-svrX	I have asthma and a couple summers ago while vacationing in Boca Grande, I was 100% affected by the massive red tide. Additionally, my son and 3 of his friends also experienced respiratory issues. By day 2 of our trip, it was unbearable and we cut our trip short and left the area. Being a Florida native, I have never experienced anything like that in my 57 years and was disturbed and disgusted. I saw so many dead fish, porpoise, sea turtles, and manatee. It looked apocalyptic.	No reply needed.

		<p>Whatever the cause, it needs to be addressed immediately and with the highest priority.</p>	
<p><b>Public Submission</b></p>	<p>Brady DeGrasse  <a href="mailto:aliveflorida@gmail.com">aliveflorida@gmail.com</a>          Status: Posted          Posted 11/13/19          Tracking No. 1k3-9d9z-jpz5</p>	<p>To Whom it May concern: I believe it absolutely essential to attack the recent problems impacting Florida's precious water, vital economy, and its citizens from a multi-disciplinary and diversely dynamic approach to include any efforts by the Center's for Disease Control to study and to the extent possible make robust the predictably certain knowledge that the variety of algae, bacteria, and other protist (i.e. eukaryotic, dinoflagellate Red Tide organisms) are contributing not only to the biological suffering of our human population, but also creating severe primary environmental impacts, and secondary, tertiary, etc. recreational, economic, and other impacts. It is beyond observationally and anecdotally evident the exceeding presence of blue-green muck during man-made/fueled "blooms" and impossible to overlook the clearly devastating impacts on almost all local sea and other life; but, chief among these aside from our people perhaps include the dolphin population--from which we may glean more data as these are among our many mammalian relatives. My interest is genuine and comes from a place of deep personal interest having been born in Florida, as a citizen, and, as with many, as one that participates in all manner of the unique recreational opportunities afforded by the varied Florida ecosystems. Also as one trained in Biology and Chemistry, I have no doubt that such efforts will prove fruitful in terms of public health data of significant use. Sweet Irony: One last bit of fodder for thought. It has and will always blow my mind to process one very prominent aspect of this story down to what the CDC might find interesting at least from an obstacles-to-public health and safety standpoint. The ONE industry that provides the most opposition to potential change at the key levels politically, economically, environmentally, as well as in terms of the health of our people and in terms of infrastructure, engineering AND current and future maintenance/management solutions is that which provides us ONLY and PRIMARILY that which the CDC most certainly has demonstrated is also the cause of other public health crises in obesity, diabetes, etc. and heretofore even dementia and Alzheimers, and that is: Sugar/The Sugar industry. I have already taken a deep dive into as much of the very disheartening games played at all levels to halt the bringing about</p>	<p>No reply needed.</p>

		<p>of wellness all around. You may wish to do the same as the push back will likely always be pervasive, powerful and perhaps quite encryptic; However, here is but one of the very foundational and directly applicable as well as scientifically worthy papers, the jist of which is, there is NOTHING being brought to the "table" by this industry in this State which does not deserve the greatest of scrutiny and, frankly, a push toward total abolishment in my view. The link: <a href="https://www.card.iastate.edu/products/publications/pdf/13wp538.pdf">https://www.card.iastate.edu/products/publications/pdf/13wp538.pdf</a> Best Wishes and Be Well.</p>	
<b>Public Submission to Jeff Zirgler</b>	<p>James P. Snedeker, Fran Clark  No email provided  Status: not posted  Received by program 11/19/19</p> <p>ALSO  James P. Snedeker, Fran Clark  No email provided  Status: posted  Posted 11/12/19  Tracking no. 1k3-9d91-qhcz</p>	See attached (Snedeker and Clark.pdf)	No reply needed
<b>Public Submission to Jeff Zirgler</b>	<p>Lois Brown  No email provided  Status: not posted  Received by program 11/19/19</p>	See attached (Lois Brown.pdf)	No reply needed
<b>Public submission</b>	<p>No name provided  aliveflorida@gmailcom  Status: posted  Posted 11/13/19  Tracking no. 1k3-9d9z-jpz5</p>	<p>To Whom it May concern: I believe it absolutely essential to attack the recent problems impacting Florida's precious water, vital economy, and its citizens from a multi-disciplinary and diversely dynamic approach to include any efforts by the Center's for Disease Control to study and to the extent possible make robust the predictably certain knowledge that the variety of algae, bacteria, and other protist (i.e. eukaryotic, dinoflagellate Red Tide organisms) are contributing not only to the biological suffering of our human population, but also creating severe primary environmental impacts, and secondary, tertiary, etc. recreational, economic, and other impacts. It is beyond observationally and anecdotally evident the exceeding presence of blue-green muck during man-made/fueled "blooms" and impossible to overlook the clearly devastating impacts on almost all local sea and</p>	No reply needed

		<p>other life; but, chief among these aside from our people perhaps include the dolphin population--from which we may glean more data as these are among our many mammalian relatives. My interest is genuine and comes from a place of deep personal interest having been born in Florida, as a citizen, and, as with many, as one that participates in all manner of the unique recreational opportunities afforded by the varied Florida ecosystems. Also as one trained in Biology and Chemistry, I have no doubt that such efforts will prove fruitful in terms of public health data of significant use. Sweet Irony: One last bit of fodder for thought. It has and will always blow my mind to process one very prominent aspect of this story down to what the CDC might find interesting at least from an obstacles-to-public health and safety standpoint. The ONE industry that provides the most opposition to potential change at the key levels politically, economically, environmentally, as well as in terms of the health of our people and in terms of infrastructure, engineering AND current and future maintenance/management solutions is that which provides us ONLY and PRIMARILY that which the CDC most certainly has demonstrated is also the cause of other public health crises in obesity, diabetes, etc. and heretofore even dementia and Alzheimers, and that is: Sugar/The Sugar industry. I have already taken a deep dive into as much of the very disheartening games played at all levels to halt the bringing about of wellness all around. You may wish to do the same as the push back will likely always be pervasive, powerful and perhaps quite encryptic; However, here is but one of the very foundational and directly applicable as well as scientifically worthy papers, the jist of which is, there is NOTHING being brought to the "table" by this industry in this State which does not deserve the greatest of scrutiny and, frankly, a push toward total abolishment in my view. The link: <a href="https://www.card.iastate.edu/products/publications/pdf/13wp538.pdf">https://www.card.iastate.edu/products/publications/pdf/13wp538.pdf</a> Best Wishes and Be Well.</p>	
<p><b>Public submission</b></p>	<p>Michael Beautyman  <a href="mailto:mbeauty@beautyman.co">mbeauty@beautyman.co</a>          Status: Posted          Posted 11/15/19          Tracking no.1k3-9db6-pq40</p>	<p>The government needs to stop studying and start banning the agricultural use of biosolids and the "nutrients" that run off into our waters.</p>	<p>No reply needed.</p>
<p><b>Public</b></p>	<p>David Preston</p>	<p>As a participant in last summers study by Harbor Branch</p>	<p>No reply needed.</p>

<b>submission</b>	<a href="mailto:Davidzpreston@msn.com">Davidzpreston@msn.com</a> Status: posted Posted 11/14/19 Tracking no. 1k3-9dak-7e0j	Oceanographic Institute to verify human exposure to toxic microcystin, I was alarmed to discover that every volunteer returned a positive test. Having lived along the St Lucie River in Stuart, FL for 35 years, I urge the CDC to conduct further research and testing to determine the health impacts of microcystic toxins on humans. Thank you.	
<b>Public submission</b>	Anonymous No email provided Status: posted Posted 11/5/19 Tracking no. 1k3-9d2d-2cn9	Weren't people already having breathing problems and such from being around the algae blooms earlier? This is a no brainer. The cdc needs to the effects of this right away!	No reply needed.
<b>Public submission</b>	Karen Dwyer <a href="mailto:dwyerka@gmail.com">dwyerka@gmail.com</a> Status: posted Posted 11/13/19 Tracking no. 1k3-9d9t-cvdd	STONECRAB ALLIANCE 15937 Delasol Lane Naples, FL 34110 239.404.2171 dwyerka@gmail.com Stonecrab Alliance @ Facebook  November 12, 2019  Re: Yes to Center for Disease Control Cyanobacteria Study  The Stonecrab Alliance is a 40-year-old social justice organization with thousands of members, many of whom depend upon the fragile ecosystems of South Florida for their livelihood and recreation.  We fully support a study by the Center for Disease Control (CDC) that proposes to examine the extent of harm caused by exposure to airborne toxins from cyanobacteria.  We already know that exposure to cyanobacteriaspecifically microcystin, a toxin produced by cyanobacteriacan lead to neurodegenerative diseases, like Alzheimers, Parkinsons, and ALS.  We already know we shouldnt be swimming, boating, or eating seafood from the toxic waters.  We need a study that pinpoints how far the airborne toxicity extends across our state.  And we need to know how unsafe it is to be breathing our air.	No reply needed.

Do we all have detectable levels of microcystin in our lungs like our friends who live along the St. Lucie River, all of whom tested positive for microcystin?

We're deeply concerned about the airborne toxicity of cyanobacteria because higher temperatures are triggering larger blooms that last longer. Recent research indicates that the bacteria is even building up resistance to salinity by developing a mucus casing, hence the increased danger of it spreading further along our coast, in brackish estuaries and backbays, if not further out to sea in the Gulf and Atlantic where the red-tide, in turn, feeds off the cyanobacteria, intensifying our red tide blooms that have led to catastrophic fish kills. Fish kills that have required front loaders and dump trucks and drag boats to daily clear the beaches of the dead sea-life everything from porpoise to manatees to sea turtles.

Regarding the fresh water cyanobacteria and the salt water red tide that it fuels it's getting more difficult to breathe in my hometown of Naples, Florida. Although I live over four miles from the beach, I now cough and hack and have sore eyes and headaches when the blooms are high. I grew up on Hurricane Harbor and spent more time in, on, and under the water than out of it. I fished, paddled, swam, and sailed the backwaters of the Gulf and Everglades as well as explored and hiked the estuaries and fields. I find it beyond belief that I can't even go to the beach anymore.

Please study the airborne toxicity.

Our hope is that this study will bring national attention to our growing human health crisis and trigger legislative action to clean up our imperiled waters.

Yours truly,

Karen Dwyer, Ph.D.  
John P. Dwyer, Ph.D.



		<p>Stonecrab Alliance  15937 Delasol Lane  Naples, FL 34110  dwyerka@gmail.com  239-404-2171</p>	
<b>Public submission</b>	<p>Anonymous  No email provided  Status: posted  Posted 11/13/19  Tracking no. 1k3-9d9u-7u7d</p>	<p>This study is essential: My family and I wade, fish and swim in the Inter Coastal Waterway in Florida and have witnesses an increase in sediment and a loss of sea grass over the years, with some areas becoming void of previously robust game fish populations - at the same time algae blooms have essentially eliminated a favorite past time of ours. As a result we have almost completely stopped using the ICW - and stopped spending money on boat rentals there, and stopped spending money on food, gas, fishing tackle, etc. Not only have algae blooms made recreation worse, I fear for my children's health and keep them away. We'll vacation elsewhere. A photo of dead fish on a beach was included.</p>	No reply needed.
<b>Public submission</b>	<p>Gayle Sheets  <a href="mailto:gayleschmidt@mac.com">gayleschmidt@mac.com</a>  Status: posted  Posted 11-13-19  Tracking no. 1k3-9d9y-o3hq</p>	<p>Research must be done to determine the effects of aerosols from cyanobacterias blooms and health effects on populations exposed to them. This work is so important in getting a handle on the dangers (or not) and will help in the writing of policy to address this potential danger. We need scientific evidence.</p>	No reply needed.
<b>Public submission</b>	<p>Ellen Ross  No email provided  Status: posted  Posted 11/13/19  Tracking no. 1k3-9d9w-luc1</p>	<p>Concerning the action required for: Aerosols from cyanobacterial blooms exposures and health effects in highly exposed populations CDC-2019-0079</p> <p>As a Florida native, a retired RN, and an asthmatic, I request serious consideration of approval of this study.</p> <p>A study hosted by Harbor Branch Oceanographic Institute last summer resulted in positive tests for detectable levels of microcystin, the toxin produced by cyanobacteria, in the nasal passages of every volunteer subject tested living along the St. Lucie River.</p> <p>The results of known and experienced exposure to the aerosolized cyanobacterial accumulations include difficulty breathing in respiratory compromised people in wide areas of blooms. Severe eye irritation and overwhelming smell from the cyanobacteria presence has</p>	No reply needed.

		<p>impacted the quality of life for residents, tourists, fishermen, and businesses.</p> <p>The lack of information on exposure and long-term health risks has led to inconsistency in public warnings that exposes the public with long-term consequences.</p> <p>Like many areas in the US, in Florida's Okeechobee Lake, rivers, coastline beaches, and lagoons, extensive cyanobacterial blooms have become a regular occurrence. The findings of this study will be of national importance.</p> <p>Information on aerosol exposure and toxicity is critical.</p> <p>The importance of this study for public health is of utmost concern.</p> <p>Ellen Ross Sarasota, Florida</p>	
<b>Public submission</b>	<p>Midge O;Hara <a href="mailto:littlegasparilla@gmail.com">littlegasparilla@gmail.com</a> Status: posted Posted 11/13/19 Tracking no. 1k3-9d9s-m47z</p>	<p>Highly Alarming that toxins from the cyanobacteria green algae bloom in Central FL &amp; SW FL canals from last year are still appearing in the air above the mangroves whose roots were in the infested canals. Millions of fish, dolphins &amp; turtles were killed. Brains of the examined species exhibited the same pattern as humans with dementia.</p> <p>The concern for the Health and well-being of the human population has to be your (CDC) top priority!!!</p>	No reply needed.
<b>Public submission</b>	<p>John Davis No email provided Status: posted Posted 11/13/19 1k3-9da0-bl4k</p>	<p>Yes, please conduct a thorough study on this important health issue!</p>	No reply needed
<b>Public submission</b>	<p>Jeffrey Ridgway No email provided Status: posted Posted 11/19/19 Tracking no. 1k3-9de2-tm3h</p>	<p>The Florida Health Department has told residents that only susceptible individuals who actually contact the blooms are likely to be affected and only experience minor symptoms. We know the toxins aerosolize. We know the toxins are found in nasal passages and lungs for those who have not made contact with blooms. We need more information on what toxins become aerosolized and if enough toxin in the air is a</p>	No reply needed.

		risk. Also, if such toxins or their effects accumulate over time.	
<b>Public submission</b>	Danny Hilburn <a href="mailto:Pompanodan@gmail.com">Pompanodan@gmail.com</a> Status: posted Posted 11/13/19 Tracking no. 1k3-9d9r-z76t	I humbly ask that we clean up our waterways so that my grandchildren can work along the rivers and lakes and enjoy our state treasures.	No reply needed.
<b>Public submission</b>	Taj Hanna No email provided Status: posted Posted 11/18/19 Tracking no. 1k3-9dd9-y9se	<p>My wife and I bought our condo in 1997. We were snowbirds at first then became FL residents in 2002.</p> <p>We love our riverfront condo and would spend a lot more time here except that my wife is extremely allergic to the airborne algae discharges. If we are at home, we must close all windows and doors and keep our air conditioner turned on even on very nice days. If not, she catches day and night and gets very little sleep. We minimize our shopping and leaving our condo for any reason.</p> <p>Therefore, we now spend every summer traveling to get away from the effects. This is very expensive and if we come home too soon, she is again very uncomfortable.</p> <p>Respectfully,</p> <p>Taj F. Hanna 4620 NE Sandpebble Trace Apt. 301 Stuart, FL 34996</p>	No reply needed.
<b>Public submission</b>	Nancy Tobin No email provided Status: posted Posted 11/13/19 Tracking no. 1k3-9d9r-uz9y	<p>Thank you for conducting this study. It is of critical importance to those of us who live in SouthWest Florida, and on the waterways here. We own and operate a vacation rental business and it is of utmost importance that our tourism industry thrives in Florida. Having been longtime residents of Florida, we have also seen a sharp decline in water birds in our area and hope the findings of this research will benefit all, both humans and wildlife.</p> <p>Respectfully, Nancy J. Tobin</p>	No reply needed.

		Punta Gorda, FL	
<b>Public submission</b>	<p>Kenneth Fredericks  No email provided  Status: posted  Posted 11-13-19  Tracking no. 1k3-9d9r-urvj</p>	<p>Please understand that this is a true health and environmental emergency, it effects people as well as wildlife and pets. I witnessed this first hand last spring I am an asthmatic and could not go to areas that had blooms. Lets work for a solution that protects everyone involved including the farmers.  Thanks</p>	No reply needed.
<b>Public submission</b>	<p>Sierra Club  <a href="mailto:Diana.umpierre@sierraclub.org">Diana.umpierre@sierraclub.org</a>  Status: posted  Posted 11-18-19  Tracking no. 1k3-9ddp-9sh8</p>	<p><b>Submitted via federal e-rulemaking portal (regulations.gov)</b>  November 18, 2019  Jeffrey M. Zirger  Information Collection Review Office  Centers for Disease Control and Prevention (CDC)  Department of Health and Human Services (HHS)  1600 Clifton Road NE, MS-D74  Atlanta, Georgia 30329  <b>SUBJ: Comments on Docket No. CDC-2019-0079</b>  Sierra Club recognizes the importance of this study and supports it as a starting point for the more comprehensive effort that is required to better understand and prevent the human health impacts from re-occurring cyanobacteria blooms in Lake Okeechobee and connecting waterbodies.  Please note that in accordance to the federal register notice, we contacted the CDC’s Information Collection Review Office to request a copy of the “information collection plan” prior to the deadline for public comment, but did not receive the plan. In as much, we are not sure if all or any of the questions listed below were addressed in that plan.  Nevertheless, we ask that you respond to our below comments and questions to ensure revisions are made to improve the overall study.  ☑ To increase the usefulness and reliability of the study, we request that the study be expanded to include people that are also highly exposed to cyanotoxins on other</p>	See Response following list of comments

		<p>waters connected to Lake Okeechobee, including the St Lucie, Caloosahatchee and Lake Worth Lagoon estuaries.</p> <p>☐ Is a sample size of just fifty (50) participants a statistically valid sample? The sample size is low in comparison to the CDC studies conducted in 2006 and 2007 referenced in the federal register notice.</p> <p>☐ What criteria are being used to define “highly exposed population”?</p> <p>☐ How will “extensive occupational exposure” be determined?</p> <p>Page 2</p> <p>☐ Will this study also include people that fish frequently along the shores of Lake Okeechobee and associated water control structures, such as areas by Port Mayaca where fishing is also popular with residents in the area?</p> <p>☐ Are all boat trips required to be on Lake Okeechobee itself, or would boat trips to connecting rivers/canals having active cyanobacteria blooms also be included? The study will be more useful and comprehensive if it includes the connecting waters.</p> <p>☐ Where (what geographies, what types of businesses) will the flyers be posted to invite participation, and for how long? Will the flyers be also available in Spanish and Creole to ensure participation is not restricted to people fluent in English? Note: In the populated areas around Lake Okeechobee, there are people living there that are more fluent in other languages.</p> <p>☐ Will the CDC clarify from what geographic areas participants will be sought?</p> <p>☐ Will the study account for potential changes in behavior of participants in the study, such as selection of fishing locations to avoid areas that have observable signs of cyanobacteria?</p> <p>☐ Will the survey screening potential participants include questions to</p>	
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		<p>help determine any biases they may have towards the study? An example of such potential bias was noted in an article by Lake Okeechobee News, where an angler interviewed stated "some anglers may be willing to participate just to prove there are no health issues for those fishing the Big O" and that "others are concerned that... national media will use the fact that CDC is studying the lake to put Lake Okeechobee in a bad light". <a href="https://lakeokeechobeenews.com/lake-okeechobee/public-comment-sought-on-cdc-plan-tostudy-lake/">https://lakeokeechobeenews.com/lake-okeechobee/public-comment-sought-on-cdc-plan-tostudy-lake/</a></p> <ul style="list-style-type: none"><li>☐ Does the NOAA satellite data to be used in the study and compared to boaters' GPS trip logs include cyanobacteria presence below the surface? How far down in the water can the satellite data detect cyanobacteria?</li><li>☐ Will the timing of boat trips include periods of decomposition of the cyanobacteria blooms?</li><li>☐ What time of the year and for how long will the study be conducted?</li><li>☐ How will CDC use the fish test data? Will it take into account that different fish absorb/digest cyanobacteria toxins differently?</li><li>☐ For which types of cyanotoxins will participants, and the fish they donate, be tested? Will the study include testing for anatoxins and BMAA?</li><li>☐ Will the participant survey include questions on whether they consume fish that they catch and the frequency of such consumption?</li></ul> <p>Page 3</p> <ul style="list-style-type: none"><li>☐ Will the CDC study include health impacts from ingestion of contaminated fish since research has shown that fish can accumulate cyanotoxins, such as microcystin?</li><li>☐ Where will participants go for their appointments and to donate fish from their boat trips?</li></ul>	
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		<p> <input type="checkbox"/> Will the study only monitor short versus long term effects of exposure to cyanotoxins, such as liver issues from microcystins?  <input type="checkbox"/> Will the participant screening/ surveys include socio-demographic questions as well as questions that could help factor in potential cognitive/mental health effects from cyanotoxin exposure?  <input type="checkbox"/> Will the study take into account that the sex of participants and/or other genetic factors may affect participants' vulnerability to cyanotoxins?  <input type="checkbox"/> How will survey participants be informed of their individual test results, such as the blood, urine, nasal swabs, pulmonary tests, in a timely manner? Will those individual results be shared with them so they can follow up with own physicians?  <input type="checkbox"/> How will you inform participants of the full study results and associated health risks?  <input type="checkbox"/> How long will it take for study results to be publicly available?  Thank you in advance for addressing our comments and questions. We look forward to seeing an updated plan for this important study and its results.  Sincerely,  Diana Umpierre, AICP  Organizing Representative  Everglades Restoration Campaign  Sierra Club  PO Box 2347 / 136A S Main St  Belle Glade, FL 33430  diana.umpierre@sierraclub.org  (561) 983-8655 </p>	
<b>Public submission</b>	Keith Roberts <a href="mailto:Keithroberts_12@hotmail.com">Keithroberts_12@hotmail.com</a> Status: posted Posted 11-13-19 Tracking no. 1k3-9d9r-ovu9	This is so important to get under control because it is effecting thousands of residents. We do not know the ramifications of long exposure. Alerts need to go out pre bloom. The public needs to also know eating contaminated fish or shell fish could be detrimental to their health. More research and the opening up of the everglades a natural filter needs to done. All pesticides and fertilizers should be	No reply needed.

		<p>contained and not dumped into our waterways. This is appalling that we have come to this point because politicians fill their pockets and look the other way. This is our Florida and we want to keep it clean and safe for all our residents .STOP dumping into our waterways .Keep the public aware of the true dangers let them know the truth ! Thank you.</p>	
<b>Public submission</b>	<p>Mechelle Schloss No email provided Status: posted Posted 11-13-19 Tracking no. 1k3-9d9t-a5uk</p>	<p>This testing should be high priority. Please. Very disturbing.</p>	<p>No reply needed.</p>
<b>Public submission</b>	<p>Tobiann Howell <a href="mailto:Tobiannah03@gmail.com">Tobiannah03@gmail.com</a> Status: posted Posted 11/13/19 Tracking no. 1k3-9d9v-hupb</p>	<p>I live on the St. Lucie River in Palm City. My children and many of their friends have gotten sick from fishing in the river. My son was sick several times during one spring. The first time we thought he had strep throat. The test was negative as was the test for Mono and whatever else was going around at the time. He was diagnosed with a bronchial infection and treated with antibiotics. Next he had an upset stomach that would not get better. Back to the doctor and he was diagnosed with unknown stomach infection and treated with antibiotics again. My neighbor mentioned that her son was getting sick whenever he went fishing in the river and I concluded that this was happening to my son as well. No more fishing and he was fine.</p> <p>I was sick with GBS a few years ago. It became chronic and this form of the disease is called CIDP. This is a very rare disease and they do not know what caused it but it is and autoimmune disease and there may be some connection. I had to have infusions for 10 years before I was finally in "remission." Another man who lives in my town had this disease at the same time that I had it.</p> <p>We all (my neighbors) get sores in our noses which we have to treat with neosporin on a regular basis.</p> <p>Hope some of this information is helpful for your study.</p>	<p>No reply needed.</p>
<b>Public submission</b>	<p>Shane Vincent No email provided Status: posted Posted 11/13/19</p>	<p>Greetings,</p> <p>I am an MSW therapist who moved to the Florida area out of love for water. I was heartbroken to see the condition of the waters around</p>	<p>No reply needed.</p>



	Tracking no. 1k3-9d9r-y78a	<p>Martin county. The gorgeous reefs around bathtub reef are all but dead, the crystal waters look like a coke product. The once clear lagoon is dark and murky, the sea grass is long dead. The state, rather than fighting polluters, litigate against compassionate citizens who give fresh water to manatees who are dying in toxic filth. Now, what was as once a beautiful motorcycle ride along the inter-coastal, often smells like open sewage. And my family and group therapy clients have to decline going to the beach at times, because we might die of flesh eating bacteria. So, by all means, continue allowing a few lobbyists destroy the ocean itself, the tourism tax and income base of our entire economy, and the lifestyle of millions of residents.</p> <p>Thank you,</p>	
<b>Public submission</b>	<p>Kenneth Fredericks  <a href="mailto:Kenneth.fredericks@gmail.com">Kenneth.fredericks@gmail.com</a>  Status: posted  Posted 10/31/19  Tracking no. 1k3-9d0g-vng3</p>	<p>I am an asthmatic and the cyanobacterial blooms effect my breathing to the point where I must stay inside. We need to correct the issue not only for me and others with my condition but for our environment, our future and our children. Please do what you can to get this important regulation passed into law.</p> <p>Thanks  K. Fredericks</p>	No reply needed.
<b>Public submission</b>	<p>Patrice Matz  <a href="mailto:figirlintx@gmail.com">figirlintx@gmail.com</a>  Status: posted  Posted 11/13/19  Tracking no. 1k3-9d9z-eccn</p>	<p>Citizens should definitely be tested for the aerosol toxins from cyanobacterial blooms and the health effects caused by them. There is already scientific documented studies regarding these toxins showing the harm done by them ,such as harm to the liver,lungs,and also neurological problems. It is extremely important to make the public aware of this,especially those living near the water . Our citizens rely on your help as well as our tourists that visit.</p> <p>Thank you for your help in this important health matter</p>	No reply needed.
<b>Public submission</b>	<p>Doreen Warihay  <a href="mailto:Mp1335obx@yahoo.com">Mp1335obx@yahoo.com</a>  Status: posted  Posted 11/15/19  Tracking no. 1k3-9dbo-mglq</p>	<p>The CDC needs to test for cyanobacterial blooms as well as study the effects on humans, mammals and the environment. We need testing and notification. Without testing, we are left exposed to toxins and we have no warnings. I'd like to be able to avoid any harmful affects so testing otifications are critical components in keeping us safe.</p>	No reply needed.
<b>Public submission</b>	<p>Becky Harris  <a href="mailto:Beckyharris11@gmail.com">Beckyharris11@gmail.com</a>  Status: posted  Posted 11/14/19</p>	<p>I had 1 of the 6 dogs that became deathly ill from microcystin from the blue green algae. I have forwarded the study (Toxins Aug 2019) on these dogs to you. All dogs succumbed to liver toxicity. Additionally, Finn, the poodle who died had his brain analyzed and slight amounts of</p>	No reply needed.

<p><b>50</b></p>	<p>Tracking no. 1k3-9dal-mx8x</p>	<p>BMAA was found in his brain. (analysis enclosed)</p> <p>Research regarding neuro toxins from blue green algae also needs to be analyzed. I fear as I live on the St Lucie river my future will include liver disease and terrible diseases like ALS, Parkinsons and/or Alzheimer.</p> <p>Please expand your research to people who live on the St Lucie river.</p> <p>Dr. Harris included veterinary records for one dog (Becky Harris.pdf)</p>	
<p><b>Public submission</b></p>	<p>Rhea McKenna No email provided Status: posted Posted 11/19/19 Tracking no. 1k3-9ddw-7ye5</p>	<p>The CDC must examine the exposure and health of aerosols from cyanobacterial blooms. Lack of information on the aerosol's effects exposes the public to long term consequences. Research must continue. It is the right thing.</p>	<p>No reply needed.</p>
<p><b>Public submission</b></p>	<p>Marjorie Harris <a href="mailto:Missyh333@hotmail.com">Missyh333@hotmail.com</a> Status: posted Posted 11/18/19 Tracking no. 1k3-9dbw-vn58</p>	<p>My name is Missy Harris I live on 525 se Alamanda Way Stuart Fl. 34996</p> <p>I have lived at this address since Nov 1998. I am an outside person. Gardening and fruit trees. My experience with the cyanobacterial blooms exposure started in 2016. My house in one street over from Kruger Pkw. I realized my bird feeder was empty and my huge avacado tree was dying. the birds didnt come back for 2 years and the tree died. I now am under Doctors care for COPD. I had no symptoms before with breathing. I have oxygen at night and carry oxygen in my car in case. Its very scarry not being able to do yard work or take out the garbage with out being out of breath.. Its down right scarry. Not one word was uttered about the seriousness of it. At one point I called the CDC and asked about it and asked what kind of mask should I wear and the gentleman responded with its doesnt matter it comes thru the eyes also. So needless to say I stayed in more. later that year my eye got bloodshot for no reason. I went to the eye Doctor at the Triangle Build. He said he had seen 3 that day. but mine was fine and not to worry. He didn't know and sounded like he was not concerned.</p> <p>Its now 2019 and the affects are many for me. Mine are frustrating becuse I am not an inside person. The inhaler cost \$150.00 I am mature so I have medicare but now I'm paying my lawn guy to do the</p>	<p>No reply needed.</p>

		<p>thing I was able to do.</p> <p>I dont know where this is going to go but its just a blessingg we got a new Gov. who cares.</p>	
<b>Public submission</b>	<p>Eleanor Anonymous mom@blitzer.org Status: posted Posted 11/14/19 Tracking no. 1k3-9daq-8bn5</p>	<p>I appreciate the CDC's scientific approach to our serious algae problem. Please do your study</p>	No reply needed.
<b>Public submission</b>	<p>Robbin Walker No email provided Status: posted Posted 11/13/19 Tracking no. 1k3-9da5-s2h6</p>	<p>Please do more investigation and ways to clean our waterways and make sure we are not all getting toxic bacteria in our bodies and the fish and food we eat.also tourism is a large part of Florida's economy and it is being damaged by our toxic bacteria.</p>	No reply needed.
<b>Public submission</b>	<p>Anonymous No email provided Status: posted Posted 10/31/19 Tracking no. 1k3-9d12-by3c</p>	<p>The waters of the St. Lucie River and Indian River Lagoon I am familiar with having lived near them since 1972. I have owned three fishing boats to date and used to sail exclusively in the Indian River Lagoon. I remember water skiing in the St. Lucie River and you "had to know where the oyster bars were for your safety". Both Rivers were covered in sea grasses. These vital breeding grounds for marine life is paramount for a HEALTHY AQUATIC system of marine biodiversity. They are the INDICATOR of a healthy River. Because of the pollution of our local rivers and the failure to manage them the marine life of Martin County has perished, returned, perished, returned, perished and you can only do that so many times with a complete devastation of Nature. Because of Political lawmakers, and let me be specific, Florida and its citizens with special interest to the subject matter we are discussing, Governor Rick Scott lowered pollution standards for our State of Florida. I have heard that he took large amounts of money away from South Florida Water Managements budget in connection with oversight of Water quality. What I know is my long history of the water quality in the St. Lucie and Indian River Lagoon, I also frequent the waters in the Atlantic Ocean off of Stuart and St. Lucie County (for surfing), the water quality during Govenor Scott's tenure was most devastating to the Marine Aquatic life. I do not find Johnson or Turtle grasses. Algae blooms were frequent and prevented me from accessing personal waterfront property that I own and pay taxes on.</p>	No reply needed.

		<p>My lively hood in retirement for the past 10 years has spent indoors as a result of Algae Blooms as a result of UNHEALTHY conditions. Everyday I would monitor the water quality and many days I would not be able to use my BOAT, I could not fish, pleasure cruise, and I could not keep the fish that I caught during days of clean water conditions for fear of what the fish contained. I have listened to the experts for years and SFWM along with a complicit governor along with a political system would give the people of Martin County lip service. We have had many lost summers, algae blooms so horrific you would wonder when is it safe to go in the water? When is it safe to go fishing? On extreme blooms we had algae in the Atlantic Ocean. For 14 years I have fished offshore because inshore fishing in my opinion is dangerous, that extends to eating the fish especially. Our offshore fishing grounds are nothing but a Rubble field of used construction garbage strung in certain areas, they have names and are found on charts, there are no appreciable reefs offshore Martin County. I grew up as a child in Jupiter and know what clean water is like. You only have to look at the two inlets on either side of the St. Lucie Inlet to experience clean water. The fishing off of Stuart the last four years has been dramatically changed. Migrating fish like Dolphin (Mahi Mahi) go around us, this used to be a fish that would reward us boat owners with a nice meal. Thats changed for the worst. The most important issue I see in regards to the CDC is the long term effects of Algae Blooms. I have heard that the "head of Martin County Doctors" at Martin Memorial has said that the Algae sits on the bottom and it might have been there from years prior but it is still active in the ability to harm for example if you had a cut on your foot and it entered your body. Thats pretty scary. But the issue at hand is AEROSOLS. I live near the water, I frequent the water and when the algae bloom is happening it is harmful to your health. I can say this because upper Respiratory infections occur. You can smell it. Then there are those times when you can't smell it but you end up with a Bronchitis infection. This is happening too frequent and is a red flag in my opinion that it is all related to the Aerosols from algae blooms. Our rivers today are like a toilet. Sewage like water. The devastation of marine life year after year, no oysters, no sea grasses, Fresh water fish found out by the inlet, mature crab's, fish lining the beaches near the inlet, Dead Sea</p>	
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		turtles, Dolphins, Manatees. This is reprehensible. We only have to look at the lack of leadership from our politicians. The special interests of agriculture over riding the interest of public safety.	
<b>Public submission</b>	Jason Pim No email provided Status: posted Posted 10/9/19 Tracking no. 1k3-9cn1-qa2o	<p>I was pleased to learn of the CDC's plans to research cyanobacteria health impacts near Lake Okeechobee.</p> <p>I am sure you are aware there are studies indicating microcystin can be much more toxic when it hits waters with higher salinity, such as where so many people live and recreate along the Caloosahatchee and St. Lucie. Here is one such study led by Barry Rosen of USGS: <a href="https://www.usgs.gov/news/salty-water-causes-some-freshwater-harmful-algae-release-toxins">https://www.usgs.gov/news/salty-water-causes-some-freshwater-harmful-algae-release-toxins</a></p> <p>I would encourage for this study to include folks from downstream areas in the Caloosahatchee and St. Lucie estuaries, in addition to Lake Okeechobee. It seems to me the exposure risk could be much greater in the "brackish" water communities, which are also more highly populated. I would also encourage the researchers to examine BMAA exposure in addition to cyanotoxins.</p> <p>Thank you,</p>	No reply needed.
<b>Public submission</b>	David Vellozzi No email provided Status: posted Posted 11/13/19 Tracking no. k2w-2zbz-ukcr	<p>This is a Comment on the Center for Disease Control and Prevention (CDC) Other: Aerosols from cyanobacterial blooms exposures and health effects in highly exposed populations CDC-2019-0079.</p> <p>My wife and I decided to retire to the Bradenton area mid-2018 because we love to be in, on, and around the water. Our activities were limited by the blooms in 2018. I find it appalling that while we have clean air and water laws on the books and have agencies charged with protecting the population like the EPA and the CDC that we do not already have a quantified analysis in hand on the magnitude of this problem, it's causes, and it's impacts. Clean air and water are essential to life. In a state so heavily dependent on tourism and fishing, clean air and water are key to the economic welfare of the state and everyone who lives in it. I support this study and wish it would include the areas around the two major tributaries where these blooms are flushed from Okeechobee. I would further support an expansion of the study to</p>	No reply needed.

		determine the extent to which the cyanobacterial blooms exacerbate red tide.	
<b>Public submission</b>	<p>Vyette Gregory  <a href="mailto:vyettegregory@comcast.net">vyettegregory@comcast.net</a>  Status: posted  Posted 10/31/19  Tracking no. 1k3-9d0g-d7bu</p>	<p>Centers for Disease Control and Prevention (CDC), Department of Health and Human Services (HHS); Docket No. CDC-2019-0079. My name is Yvette Gregory. I am the Client Services Director for Love And Hope In Action, a homeless ministry in Stuart Florida. I have helped many of my homeless clients with medical needs. Several have lost homes/vehicles due to illnesses caused by the exposure to the algae blooms preventing them from being able to work. Those that were homeless at the time of the algae bloom were exposed on a 24 hour basis which caused breathing issues, asthma, bronchitis, pneumonia and other lung-related illnesses. It is sad that with all the technology at our disposal we cannot protect our populations from these cyanobacterial bloom exposures. Even with the public outcry the Army Corp of Engineers kept opening the locks to increase the exposure to Martin County killing fish, birds, pets and people. Outright murder in my estimation!</p>	No reply needed.
<b>Public submission</b>	<p>Anonymous  No email provided  Status: posted  Posted 11/1/19  Tracking no. 1k3-9d1w-6b4l</p>	<p>We have been feeling long term repercussions from the algal blooms in Martin county. We have a family owned and run seafood business and have been in business for over 35 years. After the algal blooms for the last two years and then the worst red tide this area has seen we noticed people started having huge aversions to anything from our local waters. We are still finding that large numbers of people are asking a year later and avoiding local caught fish because they do not feel that our waters are safe even if it were nearby an area that was not impacted by the algal blooms.</p> <p>It greatly saddens us to see such an overwhelming distrust in our waters and what is being done to them. One of the unfortunate parts of this is that people do not necessarily understand that the waters may be perfectly safe to be in and around as well as consume their bounties; however, it is their feelings and perception of the health of Florida biggest asset that hurts us the most.</p>	No reply needed.
<b>Public submission</b>	<p>Kathy Snyder  <a href="mailto:keysbobkat@gmail.com">keysbobkat@gmail.com</a>  Status: posted  Posted 11/5/19  Tracking no. 1k3-9d2d-5uzz</p>	<p>To all this may concern:</p> <p>It is imperative that the flow through the everglades is allowed to take its natural path south. Men have created the event of cyanobacterial blooms entirely for their own profit. It is very easy for anyone to see</p>	No reply needed.

		<p>the effects on our health and that of our estuaries. When I moved to Cape Coral in 1993 there were always fishermen on the banks of the Caloosahatchee River. Now the riverbed is bare! There is NOTHING growing or surviving in this river! Why have these sugar entities been able to pull off this gross injustice to the people of Florida? It's all because Corporations are in charge of this Administration and don't give a damn about people or wildlife. It is All about getting their million dollar tax brakes and reversing all of the protections that were put in place by the EPA to protect our lands and lives. Florida's entire economy is based around the waters surround our state! It is absolutely necessary to correct this horrible practice of letting the Big Sugar Companies have their way by releasing nutrient rich waters from Lake Okeechobee into the Everglades, the Caloosahatchee River and the ST. Lucie River and thus causing these poisonous algae blooms! This is a clear case of money over people and it needs to be corrected NOW!</p>	
<b>Public submission</b>	<p>Hal Chittum  <a href="mailto:halchittum@aol.com">halchittum@aol.com</a>  Status: posted  Posted 11/13/19  Tracking no. 1k3-9d9s-1bcr</p>	<p>My home is on the South Fork of the St Lucie River in Stuart, Fl. The river is about 50 from the house. The blue green algae was pouring down the St Lucie last year and it was difficult to be near or on the river. I own a flats boat building company in Palm City and the blue green algae almost put us out of business last year and cost us millions of dollars in lost sales. My wife loves to swim with our dog but that is not possible because even though I have seen less blue green algae this year, it is still present in smaller quantities but the releases of highly polluted water are still happening. I have read everything I can find about the effects of breathing the blue green algae particles in the air and the scientists are very worried that we may be in serious trouble with our health because we cannot escape breathing the potentially dangerous air. This is where we live and we cannot leave. I cant believe this situation has existed as long as it has. There are solutions that can stop this from happening. It is a man made problem. How can the lives of so many people be placed in jeopardy for the profits of so few?  Hal Chittum  386 589 7224  halchittum@aol.com</p>	No reply needed.
<b>Public</b>	Deborah Karably	As a Floridian and someone whose family has lived in this state since	No reply needed.

<b>submission</b>	<a href="mailto:grantetc@gmail.com">grantetc@gmail.com</a> Status: posted Posted 11/13/19 Tracking no. 1k3-9d9u-cwdn	the 1920s, we are incredibly concerned about the effects of the air born toxins from cyanobacterial blooms along our coastlines and rivers. Please open the investigative process as soon as possible on a large scale before even more damage is done to our populations exposed either directly or indirectly as these blooms penetrate even further inland due to wind and weather conditions. Thank you. Deborah Karably St. Augustine, Florida.	
<b>Public submission</b>	Anonymous National Algae Association Status: posted Posted 10/8/19 Tracking no. 1k3-9cmd-wv84	US taxpayers have spent over \$2.5 billion on algae research for over 75 years. Algae bloom and HAB research, testing and monitoring have proven not to fix any of these devastating problems for decades. Unless real commercial algae bloom and HAB remediation takes place these problems will continue to get worse. We already know the air can be affected up to a mile away.	No reply needed.
<b>Public submissions</b>	Kristen Tessier <a href="mailto:kristintessier@mac.com">kristintessier@mac.com</a> Status: posted Posted 11/13/19 Tracking no. 1k3-9d9t-nb5g	As a resident of Martin county I support the proposed study that would examine the exposure and health effects of aerosols from cyanobacterial blooms on residents of the Treasure Coast. As a resident I want to know what the potential risks to my health are from being exposed to these blooms. (CDC-2019-0079). Thank you, Kristin Tessier Marin County, FL	No reply needed.
<b>Public submission</b>	Jocelyn Boyce No email provided Status: posted Posted 11/1/19 Tracking no. 1k3-9d1u-7cf0	HELP!!! PLEASE	No reply needed.
<b>Public submission</b>	Jason Totiu et al. <a href="mailto:jtotoiu@biologicaldiversity.org">jtotoiu@biologicaldiversity.org</a> Status: posted Posted 11/19/19 Tracking no. 1k3-9ddx-txra	On behalf of the Center for Biological Diversity, Sanibel-Captiva Conservation Foundation, Calusa Waterkeeper, Conservancy of Southwest Florida, Friends of the Everglades, Waterkeeper Alliance, and Natural Resources Defense Council, please find our comments attached. Thank you for the opportunity to comment.  Sincerely,  Jason Totoiu Senior Attorney	Thank you for your response to the Federal Register Notice Docket No. CDC-2019-0079. CDC has considered the issues raised in your comments as we developed the study design and protocol.



		Center for Biological Diversity See attachment Totoiu et al.	Thank you for your input.
<b>Public submission</b>	Elizabeth Belcht No email provided Status: posted Posted 11/18/19 Tracking no. 1k3-9dck-tdae	<p>CDC- 2019-0079We are not yet certain of the harm caused by extended exposure to aerosolized toxins from Cyanobacterial blooms, but past studies show concern for long-term exposure and public health. Recent studies resulted in positive tests for detectable levels of microcystin, the toxin produced by cyanobacteria, in the nasal passages of every volunteer subject living along the St. Lucie River. Information on aerosol exposure and toxicity is critical in the areas around Lake Okeechobee where extensive cyanobacterial blooms have become a regular occurrence. Since this is also happening in many other states, these findings will be of national importance.</p> <p>The lack of information on exposure and long-term health risk has led to inconsistency in public warnings that may expose the public to long-term consequences. We support continued study by the CDC to examine exposure and health effects of aerosols from cyanobacterial blooms on highly exposed populations during the next active bloom season. And then increased regulation to protect the health of Lake Okeechobee, nearby waterways and South Florida residents. Please act quickly.</p> <p>Thank you.</p>	No reply needed
<b>Public submission</b>	Alan Lenowitz <a href="mailto:officeaid@aol.com">officeaid@aol.com</a> Status: posted Posted 11/5/19 Tracking no. 1k3-9d2f-euqb	I bike 4 miles daily on Longboat Key barrier island next to Sarasota. During the last 18 month red tide episode here, my sense of smell and taste disappeared....and has not returned. My doctor said he has treated others with the same experience emanating from the red tide. This IS a heath crisis for Floridians living along the coast!	No reply needed.
<b>Public submission</b>	Steve Myott <a href="mailto:stevemott@bellsouth.net">stevemott@bellsouth.net</a> Status: posted Posted 11/14/19 Tracking no. 1k3-9daz-ai29	As a life long fisherman, I have seen the decline of the of Florida's waters, now to the point where it is dangerous to be near the water much less to actually swim in it. Scientists need to track the development of the toxic blooms from the sources and create solutions to reduce the chemicals that end in poison at the East and West coast estuaries. Understanding how dangerous the airborne effects are should lead to correcting the problem. Please don't wait to act on what we know to do now. Change must come.	No reply needed.

<b>Public submission</b>	Abe Levy <a href="mailto:Abelevy48@gmail.com">Abelevy48@gmail.com</a> Status: posted Posted 11/13/19 Tracking no. 1k3-9d9u-dj8j	We residents of Florida are suffering from toxins from cyanobacterial blooms. Please do everything in your power to determine the full extent of immediate and long-term effects of microcystin and other toxins from cyanobacterial blooms	No reply needed.
<b>Public submission</b>	Robin Williams <a href="mailto:robintraubw@gmail.com">robintraubw@gmail.com</a> Status: posted Posted 11/1/19 Tracking no. 1k3-9d23-m9eb	It is critical that epidemiological studies be conducted on the incidence of neurodegenerative and other diseases in areas where individuals have repeated exposures to red tide and its aerosols. Are there clusters? Is the incidence in parts of Florida greater than across the US and globally? Far greater resources are needed to study the health effects and to intervene to reduce the pollution that has resulted in the unnatural levels of red tide. All over Florida beaches are postings indicated that red tide is "naturally occurring." That is grossly misleading. While protist microorganisms like <i>Karenia brevis</i> have been around for over a billion years, the levels and the length of time their populations are running amuck in coastal waters is anything but natural. There is a perfect storm of human caused pollutants and climate change that is to blame.	No reply needed.
<b>Public submission</b>	Anonymous No email provided Status: posted Posted 11/5/19 Tracking no. 1k3-9d4m-od7s	This proposed study is to assess if there are any correlations between the pre-exposure and post-exposure results of study participants who have an extensive occupational exposure. You are only examining the effects of people who are constantly recreating on the water (boaters) during the cyanobacteria bloom season. Studies done by Florida Gulf Coast University researcher, Dr. Mike Parsons, have found airborne cyanotoxins and cyanobacteria particles of various size fractions in air samplers around people's homes. <a href="https://coastalscience.noaa.gov/news/study-explores-airborne-health-risks-from-cyanobacteria-blooms-in-florida/">https://coastalscience.noaa.gov/news/study-explores-airborne-health-risks-from-cyanobacteria-blooms-in-florida/</a> They also discovered that these airborne toxins and particles can travel approximately one mile inland away from bloom areas. Some of the particle fractions are small enough to penetrate into the human lung aveoli. Thus, why is this study not also looking at the pre-exposure and post exposure results of people who live along waterways that experience blooms and whom do not recreate (boat) on the water?	No reply needed.
<b>Public submission</b>	Doreen Marchetti No email provided	Pretend its your friends and loved ones breathing this air that is causing illness and death. Maybe then you will stop the source of the	No reply needed.

	Status: posted Posted 11/13/19 Tracnking no. 1k3-9dac-um7y	Cyanobacteria and other pollutants like sewage. Maybe some of you still care about humanity and can do what is needed to ban these very toxic chemicals and practices such as phosphate mining. Glyphosate has already been proven to kill!! Are you really willing to stand by and allow a company to continue to profit by poisoning our land and all who live on it? Do you really think what affects us in Florida doesnt or wont affect you? All water connects!!!	
<b>Public submission</b>  <b>75</b>	Ethan Baldino No email provided Status: posted Posted 11/13/19 Tracking no. 1k3-9d9z-6ra5	Do your due diligence and be sure to push this measure along. As a homeowner on the Caloosahatchee river I worry constantly about the supposed effects of microcystin exposure.	No reply needed.
<b>Public submission</b>	James C No email provided Status: posted Posted 11/13/19 Tracking no.	There's an environmental justice component here. Naples/Ft. Myers shorefront home owners (predominantly wealthy, white) are getting action on concerns they have regarding threats to their health while the Lehigh Acres community (lots less wealth, more minorities) is actually DRINKING THIS WATER VIA THE OLGA WATER TREATMENT PLANT and no one is saying or doing anything about that. Senior snowbirds breathing microcystins vs. working class people using them in baby formula, bath water, cooking, and everything else they do . . . which is more important as a potential public health crisis? If they're equally important, why aren't they getting equitable response? Add to that example that people in Belle Glade (even fewer rich white people) are breathing sugarcane smoke on a daily basis and no one is sounding an alarm about that until the smoke blows into Wellington. I don't expect the gov't to take any action: it has always been and will always be disproportionately concerned about what wealthy white Floridians want vs. the needs of others. You need only look as far as the state's history to see that. But, I just wanted to call it out that when the median home value is \$850,000 (coastal) vs. \$190,000 inland; the % white is 90 (coastal) vs. 40% inland; and the median income is \$90,000 coastal vs. \$44,000 inland; yet the inland people who are drinking "treated" cyanobacteria water get no attention, that's an environmental justice issue.	No reply needed.
<b>Public submission</b>	Wendy Mueller <a href="mailto:Wendysue1052@att.net">Wendysue1052@att.net</a>	My family moved to Florida for its beautiful water and clear skies. The air that we breath is so toxic that my mother can no longer go outside	No reply needed.

	Status: posted Posted 11/13/19 Tracking no. 1k3-9d9r-s1cs	because of the poor quality of our waters causing her to continually suffer from asthma. This is not the way her last days should be. Don't experiment on us.	
<b>Public submission</b>	Maria Teresa Mendez No email provided Status: posted Posted 11/13/19 Tracking no. 1k3-9da0-1mz6	How can this not hurt people? It is decimating animals and clearly significantly damaging their habitats so how can this be safe for humans? It is time for the appropriate governmental agencies to step in and conduct studies and make recommendations to control and reverse this situation. Please do something!!	No reply needed.
<b>Public submission</b>	Michael McFarland <a href="mailto:mdoodlem@gmail.com">mdoodlem@gmail.com</a> Status: posted Posted 10-29-19 Tracking no. 1k3-9d0e-n5u1	My wife and I tried to open a new business last summer June 15. It was right in the middle of red tide outbreak. We survived only because she was a nurse and could go back to travel nursing to save us. The red tide very negatively affected our business and our lives. The health of our water should be the number one factor when deciding things. If a citizen digs in the sand and disrupts a turtle nest everyone is up in arms but big companies and our government make decisions everyday the kill billions of living things by poisoning our water supply to make money! Not to mention the negative business ramifications put on others!	No reply needed.
<b>Public submission</b>	Katharine Miller No email provided Status: posted Posted 11/1/19 Tracking no. 1k3-9d1u-743i	The health problems of cyanobacteria exposure are already know elsewhere around the county. It is important to study it's effects here in Florida. Too many people and animals have been sickened already.	No reply needed.
<b>Public submission</b>	Nancy Kon <a href="mailto:Avkon1@yahoo.com">Avkon1@yahoo.com</a> Status: posted Posted 11/13/19 Tracking no. 1k3-9d9s-fddv	This is important to our state for the health of our citizens and for the econmic health of tourism. I would like to see the study expanded to include more people. If cyanobacteria is indeed causing negative heallth effects in exposed persons, Florida can work to eliminate the blooms while closing down areas where there is a risk of exposure.	No reply needed.
<b>Public submission</b>	Gary Lufriu <a href="mailto:lufriug@embargmail.com">lufriug@embargmail.com</a> Status: posted Posted 11/1/19 Tracking no. 1k3-9d1w-ezp9	Hello, I and my wife have been living in Cape Coral Fl since 2005 when I retired. We built a new house on the North Spreader canal system (Raker Canal) in 2008. I have been an active fisherman in Charlotte Harbor for over 13 years often going out 2 or 3 times a week. Great memories I can show & tell ya but something happened to me in July 2018. I had a stroke and as you can imagine, my life has changed. The following is my opinion as to how this could happen to me.	No reply needed.

		<p>As you know, the Red Tide/Algae Blooms had reach their peak that summer of 2018 in SW Florida. Not only fish and crustaceans but birds, reptiles and mammals were dying by the 100's and some say by the 1,000's every day. Fishing for my favorite Red Drum stopped. The Snook were gone. The water everywhere was dark and loaded with algae particles. While the Raker Canal had minimal algae floating on top, the stench from the water was overwhelming. I totally stopped going out on my boat but I live on the canal. So going outside was not pleasant. We would cough and sneeze often. On Sunday 22 July 2018, I spent all morning and afternoon outdoors in our patio next to our boat dock cooking pork ribs for my family. It was a hot day but being of Cuban/Norwegian descent the heat never seemed to bother me. I did note that the smell from the canal was strong but I keep at it. Dinner was a success. Getting ready for bed that evening I started sneezing violently and uncontrollably. This lasted 10-15 minutes. I was over 70 years old at that time and it was difficult on me physically as I have a history of Afib and mildly high blood pressure. I managed to calm down and got to bed. As far as I can remember it was a normal sleep. The next day I felt ok in the morning and early afternoon. Took my wife to an early dinner at our local Mexican restaurant and after a light dinner started to depart the restaurant. As we were going outside I noted a blurry flash in my vision. Walking to our vehicle I noted blurry vision especially to details like signage and the fingers of my hand. I had no alcohol that day so it wasn't that. I asked by wife to drive us home thinking I would fully recover my vision. It did not recover after an hour so we drove to the hospital emergency room. After several tests it was determined that I had a stroke in the area of the brain that affects vision. I have uploaded a image of my brain that highlights the affected area. I have partially recovered but I will never be the same again. I haven't been fishing since then.</p> <p>That's my story and the medical events are fully documented if additional data is needed. I believe this medical event was directly caused by airborne cyanobacterial bloom exposure. Thank you for your time and your understanding. I wish you all success in your efforts to restore our environment.</p>	
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<b>Public submission</b>	<p>Jeffrey Ridgway <a href="mailto:jeff@captainjeffridgway.com">jeff@captainjeffridgway.com</a> Status: posted Posted 11/19/19 Tracking no. 1k3-9de3-f333</p>	<p>This information is critical in the area around Lake Okeechobee where extensive cyanobacteria blooms have become a regular occurrence. Since this is happening in many other states, it is of national importance.</p> <p>The lack of information on exposure and long-term health risks has led to inconstancy in public warnings that exposes the public, particularly children, with long-term consequences.</p> <p>We need more research to find a solution to these recurring toxic alga blooms to enable Martin County to preserve our environment, our economy, our reputation and our quality of life.</p> <p>Thank you for your time and consideration.</p>	No reply needed.
<b>Public submission</b>	<p>Julie Sparks No email provided Status: posted Posted 11/13/19 Tracking no. 1k3-9d9r-7d9r</p>	<p>These waterways are vital to both tourism and personal enjoyment of the state which we live. Algae blooms and toxins need to be researched more and produce results that allow us to help the ecosystem and protect people from any long term health effects. The presence of a toxin in individuals living near the Indian River is incredibly concerning and the state should be very focused on minimizing behaviors that cause these toxins to be present.</p>	No reply needed.
<b>Public submission</b>	<p>Kim Kean No email provided Status: posted Posted 11/18/19 Tracking no. 1k3-9dda-jl4i</p>	<p>Pesticides need to be banned immediately. Big sugar needs to be held accountable for using and polluting the water in Lake O.</p>	No reply needed.
<b>Public submission</b>	<p>Beth Miller <a href="mailto:Beach.beth@hotmail.com">Beach.beth@hotmail.com</a> Status: posted Posted 11/13/19 Tracking no. 1k3-9d9r-9fgt</p>	<p>Please investigate the health effects of this exposure</p>	No reply needed.
<b>Public submission</b>	<p>Kris Pagenkopf <a href="mailto:Kris_pagenkopf@hotmail.com">Kris_pagenkopf@hotmail.com</a> Status: posted Posted 11/13/19</p>	<p>Information on aerosol exposure and toxicity is critical in the areas around Lake Okeechobee where extensive cyanobacterial blooms have become a regular occurrence. Since this is also happening in many other states, these findings will be of national importance. The lack of</p>	No reply needed.

	Tracking no. 1k3-9d9r-84tw	information on exposure and long-term health risk has led to inconsistency in public warnings that exposes the public with long-term consequences.	
<b>Public submission</b>	James Swoope <a href="mailto:jpswoope@gmail.com">jpswoope@gmail.com</a> Status: posted Posted 11/13/19 Tracking no. 1k3-9d9x-sy8z	My wife and I along with millions of other citizens choose to live in close proximity to Florida's waters. We view the existence of cyanobacterial blooms as not only a threat to our continued health but also a sign of blatant disregard for the environment on which we all depend. We realize the financial temptations of big businesses, particularly the sugar industry, to thwart environmental regulations that would serve the welfare of our state, but at some point science and human welfare must be considered over these financial incentives.	No reply needed.
<b>Public submission</b>	H Robert and Carol Parris No email provided Status: posted Posted 11/1/19 Tracking no. 1k3-9d1t-wdps	<p>My wife and I live along a canal in Cape Coral, FL and have direct access to the waters of the Gulf of Mexico. Many times in 2018 we both experienced extreme respiratory distress as a result, we believe, of the toxins in the air as a result of the polluted waters coming down the river from Lake O and red tide in the Gulf. The symptoms were coughing, hacking, difficulty breathing and headaches. In 2019 we have only had mild reactions to those toxins. When we did it was while we were boating off the coast of Sanibel Island on days where there were reports of moderate amounts of red tide in that area. We knew it was the airborne toxins causing us to cough and hack because all 4 people onboard our boat almost instantly had similar reactions. Of course, we had also experienced that same reaction in previous years while we enjoyed days on the beach or while boating. FYI, at home in 2019 we have had virtually no problems, indicating that the actions taken by the Army Corps were helping reduce such respiratory exposure. We are grateful that progress was being made!</p> <p>Today we simply want to express our appreciation for your efforts to monitor and track those airborne toxins. That is the only logical way that we can all know with certainty that there are some human risks at play here that may or may not have serious longterm effects on our health. Such a study should be TOP PRIORITY for the CDC. Please make it happen!</p>	No reply needed.
<b>Public submission</b>	Maria Robb, RN, MSN <a href="mailto:Masharobb8@gmail.com">Masharobb8@gmail.com</a> Status: posted	Thank you so much for undertaking this study, and thank you to Reps. Rooney and Mast for initiating it. The Banana River in Brevard County had similar blooms several years ago, and many people here were ill,	No reply needed.

	<p>Posted 10/7/19 Tracking no. 1k3-9cl7-k217</p>	<p>particularly with respiratory, gastrointestinal, neurological, and autoimmune problems. And of course, the wonderful manatees and dolphins that live here suffered and died in far greater proportion, as they cannot leave the toxic water. Please keep us updated as you learn more about these horrible events. Thanks for all the good work that you do</p>	
<p><b>Public submission</b></p>	<p>Becky Harris <a href="mailto:Beckyharris11@gmail.com">Beckyharris11@gmail.com</a> Status: posted Posted 10/18/19 Tracking no. 1k3-9czb-pxyz</p>	<p>If you have issues with the Okeechobee fisherman not wanting the bad exposure to their fishing industry please come to Stuart. My dog and at least 5 others became deathly ill from the cyanobacteria. They all went into liver failure and 1 died. My backyard has liver and neurological (BMAA was found in the dead dogs brain) toxins at various times. I would really like to know the safety of living where I live. i saw how deadly this toxin is as my dog spent 4 days in the hospital. This is terrible and needs attention. The people of Stuart want answers. See attachment Becky Harris2.pdf</p>	<p>No reply needed.</p>
<p><b>Public submission</b></p>	<p>Donna Melzer <a href="mailto:DonnaSMelzer@gmail.com">DonnaSMelzer@gmail.com</a> Status: posted Posted 11/18/29 Tracking no. 1k3-9ddp-f5b9</p>	<p>Re CDC Docket number. (CDC-2019-0079)</p> <p>From: Martin County Conservation Alliance, a nonprofit organization working on environmental protections since 1964. Submitter/Contact person: Chair</p> <p>Martin County Conservation Alliance agrees with and supports the need for the CDC Study regarding cyanobacterial bloom exposures for the Treasure Coast of Florida area where Lake Okeechobee cyanobacterial blooms affect the surrounding areas and the areas that receive large dumps of water from Lake Okeechobee that includes cyanobacterial blooms, and joins the answer to CDC questions as follows:</p> <p>QUESTIONS THE CDC WANTS PUBLIC COMMENT ON</p> <p>Ques. 1. Evaluate whether the proposed collection of information is necessary for the proper performance of the functions of the agency, including whether the information will have practical utility;</p> <p>COMMENT:</p>	<p>No reply needed.</p>



		<p>This information is critical in the area around Lake Okeechobee where extensive cyanobacteria blooms have become a regular occurrence. Since this is happening in many other states, it is of national importance.</p> <p>The lack of information on exposure and long-term health risks has led to inconstancy in public warnings that exposes the public, particularly children, with long-term consequences.</p> <p>The Florida Health Department has told residents that only susceptible individuals who actually contact the blooms are likely to be affected and only experience minor symptoms. We know the toxins aerosolize. We know the toxins are found in nasal passages and lungs for those who have not made contact with blooms. We need more information on what toxins become aerosolized and if enough toxin in the air is a risk. Also, if such toxins or their effects accumulate over time.</p> <p>Ques. 2. Evaluate the accuracy of the agency's estimate of the burden of the proposed collection of information, including the validity of the methodology and assumptions used;</p> <p>COMMENT: Collecting a representative sample will be challenging. The toxicity of the cyanobacteria has become a political issue with some public officials denying that the blooms are toxic in Lake Okeechobee, yet data from FDEP shows toxins are common.</p> <p>Those who are aware of the risks will take steps to avoid being in or near the blooms and will wear protective gear if exposure is necessary.</p> <p>Those who deny the toxicity will be more likely to be exposed but less willing to prove that exposure is a risk.</p> <p>Ideally employees who are required to be near blooms without protective gear on a daily basis would be the best subjects. State employees who regularly inspect and test blooms and do not wear protective gear would be ideal subjects.</p>	
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<b>Public</b>	Kelly anonymous	Our community is extremely impacted by the levels of harmful bacteria	No reply needed.

<p><b>submission</b></p>	<p>No email provided  Status: posted  Posted 11/13/19  Tracking no. 1k3-9d9s-c4nj</p>	<p>produced by these toxic blooms. Myself and my son are asthmatic. I have spent over \$4,000 just this year on his pulmonology appointments and tests, as well as emergency room visits resulting from low pulmonary function and spasmodic respiratory conditions following exposure to these blooms. We were never at a beach. The exposure came from playing on a playground at preschool. Convincing me that the red tide (brevetoxins) has no effect on humans and animals is absurd. I know from personal experience the burning, sneezing, wheezing, strangulating agony of it. To see my small child go through it along side of me is terrifying. When questioning our options, I was told to either live inside, in the air-filtered bubble of our home, wear a vogmask, or move.</p> <p>These are NOT viable options! We need to know how far inland these toxins can travel. We need to know how long (if at all) they are attached to surfaces before they become inert. Do they penetrate surfaces and remain? They cannot be cooked away, and probably cannot be washed away. We need to know how to protect our families from these toxins. Avoiding the beach is easy if you are there recreationally. Our families rely on the waters here for our income. Knowing that these toxins have been found 10 miles inland means that hundreds of thousands of us are not safe at our homes or at work. In addition to the respiratory distress, myself and my children have experienced many of the symptoms of neurotoxic shellfish poisoning. We have not consumed any shellfish, bivalve or crustacean (or even fish) from these waters. The toxins from these blooms are infiltrating our systems and accumulating until they are manifesting as disease. Citizens need to be informed of the dangers these blooms produce. Lives are at stake</p>	
<p><b>Public submission</b></p>	<p>Mary Margaret Meess  <a href="mailto:Marymargaretmeess1@gmail.com">Marymargaretmeess1@gmail.com</a>  Status: posted  Posted 11/13/19  Tracking no. 1k3-9d9r-1tp8</p>	<p>I TYPE IN ALL CAPS DUE TO MEDICAL ONLY...JUST SAW THE PLIGHT OF THE ST. LUCIE RIVER...I LIVED IN ST. LUCIE COUNTY AND MY SON'S FATHER STILL DOES...ACTUALLY; REID PAGE WATSON LIVES ON THE RIVER WITH IS LOVELY WIFE JULIA ROSE...</p> <p>HERE IS MY COMMENT...WHAT IS HAPPENING AND HAS BEEN HAPPENING HERE IN FLORIDA AND EVERYWHERE TO ME (whom began in environmental education back in an EXPLORER'S SCOUT TROUP NAMED SOAR CIRCA 1970)...IS A SIN AGAINST GOD...</p>	<p>No reply needed.</p>

		<p>YES I'M GOING TO SAY THIS BECAUSE MY WHOLE FAMILY SERVED IN THE ARMED FORCES IN ALL BRANCHES OF THE ARMED FORCES...JUST SAW HANOI JANE FONDA ON PBS SPEAKINIG OF THE PLIGHT OF OUR PLANET...HANOI JANE MIGHT HAVE BEEN WRONG TO THROW OUR BOYS AND GIRLS UNDER THE BUS BACK IN NAM (but, that doesn't change the fact l.b.j. and his cronies got rich on that war)...</p> <p>HOWEVER; I TOLD MY DAUGHTER MY MILITARY FAMILY WILL PROBABLY DISOWN ME; BUT, IF MY HEALTH IMPROVES ONE MIGHT SEE ME RIGHT ALONG SIDE JANE FONDA GETTING ARRESTED TO THE TUNE OF SAVE OUR PLANET FROM PEOPLE POLLUTION...</p> <p>I HAVE GRANDCHILDREN...I WRITE FANTASTICAL FATHER FABLES (like our father whom art in heaven) AND FISH FABLES BECAUSE OUR REEFS ARE DYING AND OUR KIDS DO NOT HAVE THE BLESSINGS I DID GROWING UP IN NATURE, WHICH I CALL MY CHURCH...</p> <p>AS A GRASSROOTS ACTIVIST SINCE BIRTH FOR GREEN GRASS, TREES, WATER, AIR - AND; LET'S BE FAIR...THERE'S ONLY ONE TRUTH TO THIS ONE...</p> <p>CDC - DO YOU REALLY CARE?</p>	
<p><b>Public submission</b></p>	<p>John Lima No email provided Status: posted Posted 11/13/19 Tracking no. 1k3-9d9v-887n</p>	<p>There is enough evidence to expand research into this link. We need to stop the spread of microcystin until we have enough evidence to forge a proper path. Lets put more resources into this research until we have the evidence we need! Our water is the key to Florida's economy!</p>	<p>No reply needed.</p>
<p><b>Public submission</b></p>	<p>Lori Lindquist <a href="mailto:taylorentertains@aol.com">taylorentertains@aol.com</a> Status: posted Posted 11/5/19 Tracking no. 1k3-9d36-c4sl</p>	<p>I live in SW FL , about 2 miles from the Caloosahatchee River, I have seen an increase of neurological symptoms as the years progress . I have suffered an increase in migraine symptoms which John Hopkins has found is a neurological disease of which headaches are 1 of about 45 symptoms that are associated with this with this disorder. I have 13 of the symptoms. I know of a person who lived on the beach that now has ALS .I have many friends suffering from various diseases that can be in characterized neurological . I have lived in this same residence for over 40 years . My symptoms have increased over time .We need to</p>	<p>No reply needed.</p>

		<p>research this matter We are ground zero for exposure to neurotoxins that are produced by Cyanobacteria . We have no data that can empirically go to as proof of what this bacteria is doing to residents who live on or by the water. The children n and the elderly may be more st risk as they typically children and the elderly may be more at risk but we just dont know ! All residents of Lee County should insist that these studies be completed as soon as possible</p>	
<b>Public submission</b>	<p>Lynda Getz No email provided Status: posted Posted 11/14/19 Tracking no. 1k3-9dai-4frd</p>	<p>As a supporter of Bullsuger.org and a permanent resident in SW Florida, I am gravely concerned about the toxicity or our air and beaches that is a continual occurrence to this state. When once we were able to enjoy the bountiful exposure to nature, we now are subject to not go to the beaches, swim in the waters, fish and enjoy water related sports. People and animals are being effected by this pollution and it is paramount that all peoples who reside here, full or part time be allowed to have this state back as the Paradise it once was. I support any and all actions needed to happen to correct this problem and sustain the natural beauty we all came here for.</p> <p>Thank you for your attention regarding this issue.</p>	No reply needed.
<b>Public submission</b>	<p>Clean water No email provided Status: posted Posted 11/13/19 Tracking no. 1k3-9d9t-wwxb</p>	<p>The information that directly links all blooms, rivers, ponds and the Gulf are the fertilizers. Stop the mass dumping of farm waste, farm fertiliser and lawn fertiliser runoff and the algae lose a feeding source. The only reason this process exists is because too many are not willing to go against big AG lobbyists and shut down and change how we are going to sustain this overgrown peninsula. You say politics and its synonymous with corruption so clean up the politics and we can clean up OUR water.</p>	No reply needed.
<b>Public submission</b>	<p>Sheryl Goodwin No email provided Status: posted Posted 11/8/19 Tracking no. 1k3-9d6o-f45x</p>	<p>I think this testing should be a high priority not only for the residents but also for tourists which is an important part of the economy. Medical bills are already a high cost to most households and if people are getting sick due to this exposure that would increase their economic woes not to mention, we should not be making people sick if there is a way to correct this problem.</p>	No reply needed.
<b>Public submission</b>	<p>Christopher Mosteiro No email provided Status: posted</p>	<p>As a coastal resident of Fort Myers Beach, Florida there needs to be more testing done to protect us from harmful algae blooms. No government agencies are stepping up for testing. This needs to be a</p>	No reply needed.

<b>100</b>	Posted 11/13/19 Tracking no. 1k3-9d9v-hxzq	priority to protect human health for harmful algae blooms.	
<b>Public submission</b>	Bill Meyers <a href="mailto:billsaboater@gmail.com">billsaboater@gmail.com</a> Status: posted Posted 11/13/19 Tracking no. 1k3-9da0-lhbr	This study is urgently needed. The public needs to know the scope of this public health threat so our politicians and regulators will be encouraged to act to correct the problem.	No reply needed.
<b>Public submission</b>	Dan Boemer <a href="mailto:Drbisnown@yahoo.com">Drbisnown@yahoo.com</a> Status: posted Posted 10/9/19 Tracking no. 1k3-9cmi-q7k0	My wife jumped into the water approx 5 miles off shore from Ft Myers Beach in late April of 2018. Shortly thereafter she developed breathing issues and is now on 2 different inhalers she has to use daily. And no doctor can figure out why her breathing has been changed so dramatically. The next week from her swimming, the Red Tide struck, killing thousands of fish just prior to 2018 Memorial Day.	No reply needed.
<b>Public submission</b>	Jeff Ridgway <a href="mailto:jeff@captainjeffridgway.com">jeff@captainjeffridgway.com</a> Status: posted Posted 11/19/19 Tracking no. 1k3-9de2-p0il	I am employed as a boat Captain and I have been based out of Martin County, Florida since 1992. These toxic algae blooms seem to be a relatively recent phenomenon and I have concern for the health of myself and my family due to the unavoidable exposure to these toxins. My concern is also about the damage done to our local marine life and our economy. We need some answers and solutions. We cannot afford to put the interests of a few big corporations ahead of those of our residents and environment. Thank you for your time and consideration.	No reply needed.
<b>Public submission</b>	Wes Westerop No email provided Status: posted Poster 11/13/19 Tracking no. 1k3-9d9r-xbmv	testing is paramount to keep all save and sound. All being the waters, waterways, all that live in and around them. Local health and tourism be damned if not done, and no actions taken on the results. Do it!	No reply needed.
<b>Public submission</b>	Michael Beautyman <a href="mailto:mbeauty@abeautyman.com">mbeauty@abeautyman.com</a> Status: posted Posted 11/1/19 Tracking no. 1k3-9d1u-wpzj	I reside in Lake Worth Beach, Florida. In 2018, I had to fly north because the intercoastal waterway at Lake Worth was so toxic, I could not breathe.	No reply needed.
<b>Public submission</b>	Ruth Mead No email provided Status: posted	Cynobacteria has been proven toxic,also is a known carcinogen.Ponds in MA have posted BEWARE signs to keep dogs and people away from the water. This is serious health problem. Ruth Mead Martin County	No reply needed.

	Posted 11/18/19 Tracking no. 1k3-9dd9-fwm5		
<b>Public submission</b>	Dick Landrum <a href="mailto:Dick@LandrumSoftware.com">Dick@LandrumSoftware.com</a> Status: posted Posted 11/5/19 Tracking no. 1k3-9d3r-vjvk	<p>In the 1950s and 60s our family camped on islands in Lake O, hunted and fished in Lake O, leaving from Clewiston; we camped in several spots in the Everglades, at Fish Eating Creek, and many other camping areas. Never then could I have imagined what a problem the lake would cause for our neighborhood in the future. We have been in Palm City since 1983 and have witnessed the continuing damage that Lake O discharges have caused.</p> <p>My wife and I were tested for toxic algae by the Harbor Branch study, and, like most everyone else that lives near, works, and plays in the St. Lucie River, Indian River Lagoon, and Atlantic Ocean we tested positive. Knew we would since we had many episodes of sore throats, watering eyes, runny noses, and constant coughing. Some days we would get these symptoms with just a ten-minute exposure to the river.</p> <p>I understand that USACE is not taking full advantage of all the water storage areas south of Lake O before deciding to dump the lake on the East and West coast through the St. Lucie and Caloosahatchee rivers. Over the years, the discharge schedules have completely disregarded the health of the two rivers, the estuaries, coastal areas, Gulf, and Atlantic. This environmental nightmare should have been stopped decades ago.</p> <p>Sincerely,</p> <p>Dick Landrum 2949 SW Cornell Ave. Palm City, FL 34990 <a href="mailto:Dick@LandrumSoftware.com">Dick@LandrumSoftware.com</a> (772) 249-7408</p>	No reply needed.
<b>Public submission</b>	Kelley Watson No email provided Status: posted	I am a resident of Naples, FL. My and my husband's livelihoods are contingent upon clean water and the good health and positive experience of tourists and seasonal residents who pay our bills. Bad	No reply needed.

	<p>Posted 11/13/19 Tracking no. 1k3-9dad-rldw</p>	<p>health outcomes = detrimental income outcomes. Please conduct this research and don't hide the findings.</p>	
<p><b>Public submission</b></p>	<p>Rosalia Kung No email provided Status: posted Posted 11/19/19 Tracking no. 1k3-9ddv-3e1p</p>	<p>CDC-2019-0079 QUESTION 1. Evaluate whether the proposed collection of information is necessary for the proper performance of the functions of the agency, including whether the information will have practical utility.</p> <p>ANSWER 1. We have had repeated occurrences of extensive cyanobacteria blooms in Florida, specifically in Lake Okeechobee and the surrounding waterways. I am aware that this has also occurred in California. This IS NOT a local issue but one that affects at a minimum two large, populous states.</p> <p>We have no information concerning the long-term health risks from these bacteria. I find the lack of information as to the safety of the continuous use of Lake Okeechobee and the surrounding waterways to present a danger to Florida residents and visitors. This creates an economic, as well as a health, issue for Florida and other states where the bacteria is present.</p> <p>QUESTION 2. Evaluate the accuracy of the agency's estimate of the burden of the proposed collection of information, including the validity of methodology and assumptions used.</p> <p>ANSWER 2. The FDEP has data which indicates that the blooms in Lake Okeechobee are both toxic and aerosolize. However, not all employees who work at or around the blooms use protective gear. These individuals would be the best subjects for a study of long-term affects of Lake Okeechobee cyanobacteria blooms.</p> <p>QUESTION 3. Enhance the quality, utility, and clarity of the information to be collected; and</p> <p>ANSWER 3. What is most important is developing a worst-case study that identifies the risks for those people who are regularly exposed to these toxins.</p>	<p>No reply needed.</p>



		<p>QUESTION 4. Minimize the burden of the collection of information those who are to respond, including through the use of appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology, e.g., permitting electronic submissions of responses.</p> <p>QUESTION 5. Assess information collection costs.</p> <p>ANSWER 5. It is imperative that we citizens are aware of the entire long-term problem and associated costs to enable us to make educated decisions about how to deal with the effect of these aerosolized toxins. The current lack of knowledge of the long-term health risks of cyanobacteria is unacceptable.</p>	
<b>Public submission</b>	<p>Sam Hay  <a href="mailto:samhhay@gmail.com">samhhay@gmail.com</a>  Status: posted  Posted 11/18/19  Tracking no. 1k3-9dbw-g9pr</p>	<p>I live in Martin County, Florida where my wife and I have face inescapable exposure to toxic microcystins. These toxins are produced by the blue-green algae which bloom in our bodies of water, most notably Lake Okeechobee. When the bloom-infested waters of the lake are discharged into our estuary the population of our community is exposed to all the dangers associated with these toxins, and some of these are quite critical, including various dread neurological degenerative diseases.</p> <p>Because these toxins remain present in the muck underlying our waterways, we choose never to swim in them. We do swim in the ocean, but not when we are aware that cyanobacteria are present. Even though we do everything we can to reduce our exposure to the toxins, anywhere we go in our community we are exposed to the aerosolized toxins in the air we breathe, and scientists tell us that aerosol exposure is even more deadly than actual ingesting. We residents of Martin County are living with an on-going health threat is is very serious indeed. We need any relief from this situation which can be provided; an in-depth study by the CDC would be a very welcome contribution.</p>	No reply needed.
<b>Public submission</b>	<p>Anonymous  No email provided  Status: posted  Posted 11/14/19  Tracking no. 1k3-9dan-20t4</p>	<p>I support this study, but it should be expanded to include also the connecting waterways where some people frequently fish. There should be intentional outreach to make sure that this study is not biased and excludes low income community members, including those that may not be fluent in English. The Glades area (Belle Glade,</p>	No reply needed.

		Pahokee and South Bay) has generations of immigrant families and many are fishermen but may not own boats. Please, keep environmental justice issues in mind.	
<b>Public submission</b>	Anonymous No email provided Status: posted Posted 11/14/19 Tracking no. 1k3-9db6-dvtn	Understanding the impact of aerosol exposure and toxicity caused by cyanobacterial blooms is critical to individuals that have been unknowingly exposed for years. Individuals and communities need to mitigate and plan for the short and long-term consequences associated with these blooms. I have been a Martin County resident for more than 30 years spending all spare time on, in and around the water. It makes me sick, not to mention scared, to think that we have unknowingly exposed multiple friends and family members to potential harm with devastating outcomes. Knowledge and education are imperative for the future.	No reply needed.
<b>Public submission</b>	Kevie Connaughton No email provided Status: posted Posted 11/13/19 Tracking no. 1k3-9da3-uzup	It is critical that epidemiological studies be conducted on the incidence of neurodegenerative and other diseases in areas where individuals have repeated exposures to red tide... As a resident of SWFL who lives near the gulf, when red tide is present I have immediate reaction, swollen eyes, nasal issues, cough and throat irritation to name a few. These become evident even before the red tide fish kills are present on our beaches. Please assess these conditions so that appropriate warnings and action may be taken to avoid major health implications to Florida residents living near these waterways and the many visitors and snowbirds in the state.	No reply needed.
<b>Public submission</b>	Bobbi Rodgers No email provided. Status: posted Posted 11/13/19 Tracking no. 1k3-9d9s-x0c3	In regards to the CDC study CDC-2019-0079 on potential toxins from air borne cyanobactia, I feel strongly that this study should move forward. As a 30+ year Florida resident, I have witnessed algae blooms in the past, but they have never been as bad as recently. The risks associated with these toxins must be of high CDC importance.  Thank you.	No reply needed.
<b>Public submission</b>	Suzanne No email provided Status: posted Posted 11/13/19 Tracking no. 1k3-9d9u-mcyh	It is vital that rigorous testing be done to uncover the truth of the danger of all of the chemicals affecting our waters & general overall health! We are sick and tired of being poisoned! Please do the right thing.	No reply needed.
<b>Public submission</b>	Mary Starzinski <a href="mailto:marystarkp@gmail.com">marystarkp@gmail.com</a>	I am a physician, Florida Master Naturalist Instructor and interested in and concerned about the public health. Obtaining this information is	No reply needed.

	<p>Status: posted Posted 11/19/19 Tracking no. 1k3-9ddw-unyy</p>	<p>critical in the area around Lake Okeechobee where cyanobacteria blooms have become a regular occurrence. It is of national importance as it is also occurring in many other states.</p> <p>The lack of information on exposure and long-term health risks has led to inconsistency in public warnings that exposes the public, particularly children, to the long-term consequences of exposure to toxins. We know that these toxins aerosolize and have been found in the nasal passages and lungs of those who have been exposed to the blooms. We need scientific information on: 1)which toxins become aerosolized 2)the quantity of toxins which represent a health risk and 3)the physical effects of toxin accumulation over time.</p> <p>Collecting a representative sample will be challenging. The toxicity of the cyanobacteria has become a political issue with some public officials denying that the blooms are toxic in Lake Okeechobee, yet data from the FDEP show toxins are common.</p> <p>Those who are aware of the risks will take steps to avoid being in or near the blooms and will wear protective gear if exposure is necessary. Those who deny the toxicity will be more likely to be exposed but less willing to prove that exposure is a risk. Ideally employees who are required to be near blooms without protective gear on a daily basis would be the best subjects. State employees who regularly inspect and test blooms and do not wear protective gear would be ideal subjects. Both Florida Atlantic University and Florida Gulf Coast University have done studies on inhalation of microcystin. Data from those studies should be used to determine appropriate samples.</p> <p>White frequent recreational fishing on Lake Okeechobee might be seen as frequent exposure, many recreational fishermen stick to the Lake marshes where no blooms have been identified.</p> <p>The study and its sampling methods should make clear whether they are collecting data from those with a high likelihood of regular aerosol exposure OR whether it is simply a sample of those who have some degree of aerial exposure the would reflect the general populace.</p> <p>What is most needed is a worst-case study that allows those who must be regularly exposed to know if there are risks involved.</p> <p>The lack of information on the health risks of cyanobacteria puts us at risk for high human health and economic cost. Being cheap and "seeing no evil" is not an acceptable strategy.</p>	
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<p><b>Public submission</b></p>	<p>Jon Page  <a href="mailto:DRJONPAGE1@GMAIL.COM">DRJONPAGE1@GMAIL.COM</a>          Status: posted          Posted 11/18/19          Tracking no. 1k3-9dce-59cb</p>	<p>Regulations.gov          Center for Disease Control          Comment Now          Docket number: CDC20190079          RE: PROPOSAL TO STUDY MICROCYSTIN EXPOSURE FROM BLUE-GREEN ALGAE.</p> <p>From: Jon Page. Martin County, FL</p> <p>1. Evaluate whether the proposed collection of information is necessary for the proper performance of the functions of the agency, including whether the information will have practical utility. The extensive cyanobacteria blooms around Lake Okeechobee, as an occurrence also throughout our country, is of national importance. :Public warnings are inconsistent; exposure and long-term health risks is lacking . The Florida Health Dept has stated that only those in contact with the blooms are likely to e affected, but toxins aerosolize. They have been found in the nasal passages and lungs of friends of mind including those who havent made direct contact with the blooms. We need more information on what toxins become aerosolized and if enough toxin in the air is a risk, if effects of toxins accumulate over time. Further, how might the toxins at the bottom of Lake Okeechobee be safely cleaned up, if at all possible?</p> <p>2. Evaluate the accuracy of the agency's estimate of the burden of the proposed collection of information, including the validity of the methodology and assumptions used. Florida Atlantic University and Florida Gulf Coast University have done studies on inhalation of microcystin. Their data would be useful to determine appropriate samples. Ideally employees who are required to be near blooms without protective gear on a daily basis would be the best subjects. State employees who regularly inspect and test blooms and do not wear</p>	<p>No reply needed.</p>

		<p>protective gear would be ideal subjects, as would employees who are required to be near blooms without protective gear on a daily basis.</p> <p>3. Enhance the quality, utility, and clarity of the information to be collected.</p> <p>The study and its sampling methods should make clear whether they are collecting data from those with a high likelihood of regular aerosol exposure OR whether it is simply a sample of those who have some degree of aerial exposure that would reflect the general populace. Include a worst-case study that allows those who must be regularly exposed to know if there are risks involved.</p> <p>4. no comment</p> <p>5. Assess information collection costs.</p> <p>We are at risk of tremendous costs in health and economics. We pay now or pay more dearly later.</p>	
<b>Public submission</b>	<p>Alison Date No email provided Status: posted Posted 11/14/19 Tracking no. 1k3-9daq-60kh</p>	<p>Even though we do not yet know the extent of harm caused by extended exposure to aerosolized toxins from these blooms, but past studies show concern for long-term exposure and health concerns, these toxins need to be further investigated and a solution to toxic blooms needs to be enacted as soon as possible.</p> <p>A study hosted by Harbor Branch Oceanographic Institute last summer resulted in positive tests for detectable levels of microcystin, the toxin produced by cyanobacteria, in the nasal passages of every volunteer subject tested living along the St. Lucie River.</p> <p>Information on aerosol exposure and toxicity is critical in the areas around Lake Okeechobee where extensive cyanobacterial blooms have become a regular occurrence. Since this is also happening in many other states, these findings will be of national importance.</p> <p>The lack of information on exposure and long-term health risk has led to inconsistency in public warnings that exposes the public with long-term consequences. Please rectify this dangerous health hazard.</p>	No reply needed.
<b>Public submission</b>	<p>Marilyn Runnels <a href="mailto:runmart@outlook.com">runmart@outlook.com</a> Status: posted Posted 11/13/19</p>	<p>The beautiful state of Florida is being ruined by these blooms. The fish are dying, the people are coughing and worse. I personally can not go near the beach, depending on the wind, within 3 miles. What are the long term affects to our lungs? The beach industry of course has</p>	No reply needed.

	Tracking no. 1k3-9dac-e8db	suffered, boating, fishing, etc, The real issue is not money but health and well being of the people who chose to live and visit this state. Please help! Money was granted 20 years ago to research and fix the Lake O problems, why are we still having problems?	
<b>Public submission</b>	Claudia Gold No email provided Status: posted Posted 11/13/19 Tracking no.	This is extremely important. We have no idea what the harm might be from these blooms on people living in the area. Please help!!!	No reply needed.
<b>Public submission</b>	Becky Harris <a href="mailto:Beckyharris11@gmail.com">Beckyharris11@gmail.com</a> Status: posted Posted 10/31/19 Tracking no. 1k3-9d1d-lpep	<p>I live on the ST Lucie River and had 1 of the 6 dogs that became deathly ill from the toxic algae in august of 2018. I saw exactly what my dog did that day. She ran to the beach and took a bite of a dead catfish on our beach. That morning- no algae was on my beach or in the water I could see. She is 6 lbs took 1 small bite. 6 hours later she started vomiting, progressed into more vomiting and lethargy. Approximately 12 hours later I had to take her to the Pet ER- she could not hold her head up. She then spent 4 days in the hospital- 1 platelet transfusion, and multiple IV drugs later, she survived, her vets think she is a miracle. Her ALT levels were above 9000! Unheard of!</p> <p>-Not only should this study be done in the lake Okeechobee area, but the St Lucie area.</p> <p>-Not only should this study look at the effects toxic algae has on humans but the fish and shellfish we eat.</p> <p>-Not only should this study look at the effects of the above but some sea life that has been effected. Studies have shown dolphins acting like confused Alzheimer patients- BMAA has been found in those dolphins brains.</p> <p>This is incredibly important to address particularly in the area surrounding Lake Okeechobee. An Ohio State study found a large amount of non alcoholic liver related diseases in the 4 counties near the lake- Martin, St Lucie, Okeechobee and Indian River counties. This and many more studies need to happen , thank you.</p> <p>See attached Becky Harris3.pdf</p>	No reply needed.
<b>Public submission</b>	Irene Gomes <a href="mailto:driftwoodjb@comcast.net">driftwoodjb@comcast.net</a> Status: posted	I was one of over seventy people tested in September of 2018 by FAU's Harbor Branch Institute after being exposed to toxic blooms of cyanobacteria. They collected blood urine and nasal swab samples of	No reply needed.

	<p>Posted 11/5/19 Tracking no. 1k3-9d37-7q10</p>	<p>which 100% of us tested positive for microcystin in our nasal passages. Obviously these are airborne toxins of great concern to the health of humans, animals and wildlife. The liver is the primary target of Microcystin causing liver cell damage and chronic liver disease. My fear is the long term consequences of the exposure to our children and grandchildren. I'm fearing we might get a diagnosis of liver cancer from the prolonged exposure. Our families haven't been able to enjoy the summer activities and many business has been affected which I've personally experienced as a Motel owner along the Indian River Lagoon. I had several customers that sent me certified letters cancelling their long term winter stay's vowing not to return until this is resolved. Irene Gomes Driftwood motel 4150 N.E. Indian River Drive Jensen Beach, Fl. 34957</p>	
<p><b>Public submission</b></p>	<p>Michael Federici <a href="mailto:akamichaeldania@aol.com">akamichaeldania@aol.com</a> Status: posted Posted 11/13/19 Tracking no. 1k3-9d9w-2kbc</p>	<p>Mr. Jeff Zirger</p> <p>Im sending you this letter in the hope that you could be able to direct me to a department that is doing studies on how to manage the green algae situation. We have a product that has a high PH 12.2, with no VOCs, no sodium hydroxide, at all, is non-corrosive, non caustic, and is green. When I say green, Im not making that claim because it will become green by default once dispersed into millions of gallons of water, it is green on its own. A STRUM test was conducted on this product and proved to be green, unfortunately that corporation we were involved with was dissolved, for other reasons, so we cant use that finding presently. On that note, the product has been improved upon, and now uses a green surfactant, which allows it to be Greener, then it was.</p> <p>Many field tests have been preformed with this product, and the one I will speak about should have no problem in removing algae also. On a chicken farm they mixed this product with waste runoff flowing into a stream. It dissolved all of the waste, the only problem they found was that good enzymes would have to be replaced in order for the cycle of life to re-start. What they found was that anything organic, was removed due to the high PH. Once laymen hear this they believe it has</p>	<p>Thank you for your response to the Federal Register Notice Docket No. CDC-2019-0079. As a Federal Agency, CDC cannot endorse specific products or processes. CDC recommends that you contact local organizations in areas dealing with cyanoabacterial blooms.</p>

		<p>to be bad, aside from my uncle brushing his teeth with this product, I, myself, have dipped my finger into the concentrate, placed it in my mouth, and had no side effects.</p> <p>My father, and his chemist, brother-in-law, created this product some time ago, and I believe, because of their old school ways, they havent been able to achieve much success with it, in this field. [they are in their upper 80s] With their green light, I am now pursuing many markets they have shyed away from. Not having a lifetime of connections in certain industries is making my journey difficult, with cold calls, but I have seen, first hand, how amazing this product is, so it fuels me in this endeavor.</p> <p>You will probably be asking yourself why havent they pursued this endeavor. They decided that they didnt want to have to deal with the EPA due to their belief of how long it would take for their approval. Which is why they decided to place it in the oil industry. In brief, the product is an oil splitter, will remove sulfur, testing in separating sandoil, from Canada, and fracing have finally begun, amongst other things. We also believe, due to its high PH, it will eradicate many of the Super Bugs the CDC is dealing with. Here is the address for the website I am constructing. It has a lot more information about the product. Badgergreen.com</p> <p>Thank you for youre time. Michael Federici 954 822 8111</p>	
<p><b>Public submission</b></p>	<p>Laurie Lorch No email provided Status: posted Posted 10-/31/19 Tracking no. 1k3-9d0f-pqhi</p>	<p>For too many years residents of Martin County have experienced lost summers, where weve been warned against coming into contact with our river and ocean water. Concerned about the cause I joined several groups investigating the cause/solutions. I came to understand the unethical and in my opinion illegal behavior of Federally subsidized agricultural organizations preventing the Army Corps sending water south, and instead intentionally sending toxic water to communities on the East &amp; West Coast. Living in South Florida should be a paradise for water sports, boaters, fishermen, etc. Rather than living in a community where every summer, the County is posting signs not to</p>	<p>No reply needed.</p>



		come into contact with the water, and in too many cases not to breath the air. Sorry but I dont know how to keep living without breathing.	
<b>Public submission</b>	Lindy S. No email provided Status: posted Posted 11/8/19 Tracking no. 1k3-9d72-n7qe	<p>I am a healthy middle aged person, yet my breathing has been affected several times by airborne irritation within 1 mile of the Naples FL beaches during algal blooms. It begins with a "tickle" in the throat, but within 10 minutes can turn into heavy coughing, headache, eye irritation and ultimate chest tightening. For some people - those with breathing problems and asthma, this can be a life threatening situation. I experienced this when a friend felt her throat closing up and coughed incessantly. We had to immediately seek shelter in enclosed, air conditioned space. The symptoms clear up quickly when a person gets indoors. There should be no question about the correlation between the contaminated outdoor air and these breathing problems - when one goes inside, the effects wear off fairly quickly. However, as with any contaminant to the lungs, it only follows that there must be longer term damaging effects which are yet to be researched and discovered.</p> <p>I strongly believe that any parties who are even partially responsible for aggravating algal blooms must be held accountable for damaging the health of people along the coast. This is a health hazard that must be taken seriously.</p> <p>Thank you.</p>	No reply needed.
<b>125</b>			
<b>Public submission</b>	Mary Lebrasseur <a href="mailto:mclebrasseur@gmail.com">mclebrasseur@gmail.com</a> Status: posted Posted 11/13/19 Tracking no. 1k3-9d9s-6dyt	We must know the health implications of the presence of these blooms to the people and wildlife of the coastal areas subjected to them. Armed with data, thet publilc and private secotrs can then determine how best to keep coastal populations, ecosystems and economies safe and healthy.	No reply needed.
<b>Public submission</b>	Sarah Duke <a href="mailto:Sarahduke16@yahoo.com">Sarahduke16@yahoo.com</a> Status: posted Posted 11/13/19 Tracking no. 1k3-9d9v-pfhn	A study to determine the long term effects of cyanobacterial blooms is necessary to provide residents and tourists of possible dangers associated with exposure to regularly occurring blooms. Having information about negative impacts associated with contact to these aerosolized toxins allows residents and visitors to make better decisions about where they will live, play, and visit. These studies	No reply needed.

		could mitigate risk, liability, and further damage to the environment, while providing decision makers the data to make necessary changes so that economic growth within the state is not stymied in the future	
<b>Public submission</b>	Jeffery Wade No email provided. Status: posted Posted 11/13/19 Tracking no. 1k3-9d9t-1ced	Hello, I think it's very important to do this CDC study (docket number CDC-2019-0079) - there is a significant population at risk. Thank you.	No reply needed.
<b>Public submission</b>	James Chell No email provided Status: posted Posted 11/14/19 Tracking no. 1k3-9dah-o876	<p>It is time to regulate the agricultural interests in Florida who are creating this bacterial problem by polluting our rivers and lakes as a result of agricultural run off from farming operations. They have created a life threatening situation for people along our waterways and need to held accountable and regulated. We need to reduce the leased state land available to agriculture and restore the natural wetlands that allowed for a natural process of water filtration as it migrates south to the Everglades ecosystem.</p> <p>It is also time to FUND Everglades restoration to allow CLEAN fresh water to get to the Everglades which are dying from the lack of fresh water which has been diverted by the Army Corp of Engineers to benefit agricultural interests at the expense of a healthy Everglades ecosystem. This diversion of water which should be flowing naturally to Everglades wetlands ends up in Lake Okeechobee resulting in artificially high water levels in the lake and toxic discharges into the St Lucie and Caloosahatchee Rivers which then poison the Indian River Lagoon System, SW Florida and Gulf and nearshore Atlantic waters.</p> <p>We have crisis on our hands and it is time to put public and environmental health ahead of agricultural special interests who are destroying everything people love about Florida.</p>	No reply needed.
<b>Public submission</b>	Becky Harris <a href="mailto:Bechyharris11@gmail.com">Bechyharris11@gmail.com</a> Status: posted Posted 11/1/19 Tracking no. 1k3-9d1u-rv8m	<p>These are some important comments from researchers in the area of algal blooms :</p> <p>From Dr Larry Brand: Dr. Brand put it this way: Most people now know not to go swimming in this water and not to eat the seafood that comes from this water, but lots of people move to Florida to live next to the water and you cant help but breathe the air. We dont know to what extent these</p>	No reply needed.

		<p>toxins are getting into the air and how much of a health risk that is. From Dr Paul Cox: The EPA is charged with protecting the health of citizens of the United States, Dr. Cox said. The CDC is charged with trying to discover the sources of disease. What I tell them is Get to South Florida now.</p> <p>Lake Okeechobee as well as the St Lucie River area is ground Zero for deadly algal blooms. Please consider multiple studies.</p>	
<b>Public submission</b>	<p>Anonymous No email provided Status: posted Posted 11/5/19 Tracking no. 1k3-9d4e-tdr2</p>	<p>The results of what little testing has been done are long overdue, they need to be published...the public has a right to know.</p>	No reply needed.
<b>Public submission</b>	<p>Ed Fielding <a href="mailto:Ecf7660@gmail.com">Ecf7660@gmail.com</a> Status: posted Posted 11/19/19 Tracking no. 1k3-9de1-fx53</p>	<p>agency name (CDC) and Docket number. (CDC-2019-0079) We live on a small tributary of the South Fork of the St. Lucie River. The creek is part of our backyard.</p> <p>A few weeks ago I sustained a small tear near my ankle resulting from my shoe rubbing across the ankle.</p> <p>About 24hrs later I was admitted to the local ER with spreading infection in the right (tear) leg. Was put on IV antibiotics. The infection continued to spread so by the following evening the other leg was also infected (swollen,hot, advancing beyond the knee).</p> <p>Infectious disease specialist changed the antibiotic and swelling started to regress.</p> <p>Event history, entered ER Monday morning, was released Friday evening. We narrowly avoided overwhelming sepsis.</p> <p>So why do we have many instances of aggressive infection and then a large population, also exposed, but not become infected?</p> <p>I believe the recently published study - Nov. 11, 12019 Proceedings of the National Academy of Sciences under Dr. Ashok Chopra Univ Tex Medical Branch and summarized in livescience.com by Nicoletta</p>	No reply needed.

		<p>Lanese. Lanese indicates that 4 Bacteria Strains Gang Up to Cause Deadly Flesh-Eating Infection. Together doing what no individual bacteria would normally does by itself.</p> <p>Prof. Rita Colwell, a Distinguished University Professor in the University of Maryland Institute for Advanced Computer Studies also participated in various studies of these effects.</p> <p>Yes, the whole nation needs to better understand the creation of intensified infection from combining of multiple strains of bacteria.</p>	
<b>Public submission</b>	<p>Fred Rounsaville No email provided Status: posted Posted 11/18/19 Tracking no. 1k3-9dd9-q12n</p>	<p>The govt needs to get in front of this problem and quit looking for some one to blame. We now know that these toxic blooms are harming mammals and yes humans are mammals. Stop the spraying of the lakes with herbicides. Eliminate the existing septic tanks and drain fields. Please put into effect the means to protect us.</p>	No reply needed.
<b>Public submission</b>	<p>Dawn Bevers No email provided Status: posted Posted 11/5/19 Tracking no. 1k3-9d4h-5txo</p>	<p>Please move forward with a study to examine exposure and health effects of aerosols from cyanobacterial blooms on highly exposed populations during the next active bloom season. As a mother of a small child and a native Floridian, I am extremely concerned with the health effects of these algal blooms. During the last bloom my entire family was stricken with respiratory illness. Until the blooms occurred, we had no illness. I understand that this could be coincidental, however, science is needed to understand the public health implications of these blooms.</p>	No reply needed.
<b>Public submission</b>	<p>Randall Smith No email provided Status: posted Posted 11/1/19 Tracking no. 1k3-9d1u-jgkz</p>	<p>Re: CDC-2019-0079</p> <p>As a new homeowner in South Florida (Pompano Beach), I am concerned about the overall water and air quality, with both being under assault by climate change, population burden, and agricultural chemicals and runoff. I support the investigation of any adverse effects from cyanobacterial blooms.</p> <p>Randall Smith Pompano Beach, FL</p>	No reply needed.
<b>Public submission</b>	<p>Anonymous No email provided Status: posted</p>	<p>Sadly I only kept my house about 2 years, after loving moving to the land of eternal summer when I retired. I could not in good conscience keep it and subject myself to potential harmful medical effects. As a</p>	No reply needed.

	Posted 11/5/19 Tracking no. 1k3-9d2o-s0fx	retiree, I also could not wait for the real estate market to catch up to the travesty and lose the value.	
<b>Public submission</b>	Bridget O'Brien No email provided Status: posted Posted 11/19/19 Tracking no. 1k3-9ddu-rhxu	<p>Thank you for the opportunity to comment on the proposed project Aerosols from cyanobacterial blooms: Exposures and health effects in a highly exposed population. This is a subject that the Vermont Department of Health receives questions on each year.</p> <p>We are concerned that the proposed sample size of 50 is not sufficient to be able to detect potential effects of exposure, and we would encourage the number of participants be increased.</p> <p>While we are interested in seeing results for the highly exposed occupational participants, we believe this study would be more beneficial if it also included lakeside resident participants. Their exposures may not be as large in magnitude, but they are likely more chronic than the occupational exposures.</p> <p>From the brief description in the Federal Registrar, it is not clear what will be asked on the surveys. We recommend asking participants about medicine and alcohol consumption that may also impact liver enzymes.</p> <p>Thank you, Bridget OBrien Vermont Department of Health</p>	No reply needed.
<b>Public submission</b>	Robert Berg <a href="mailto:robertbergesq@aol.com">robertbergesq@aol.com</a> Status: posted Posted 11/18/19 Tracking no. 1k3-9dbw-wxza	The cyanobacterial blooms in Lake Okeechobee present grave threats to humans and animal life in the surrounding environs and down the estuaries through which the water is frequently flushed by the Army Corps of Engineers during the rainy season. We've seen the devastation caused by these blooms to the estuaries, and the link to the historic, persistent red tides on both coasts needs to be further evaluated. Yet the most pressing need is for the CDC to mount more intensive and long-term studies of the health risks of cyanobacterial blooms to humans. These blooms are believed to be highly toxic and may cause a variety of severe illnesses and bodily harm, and the CDC must be at the forefront in studying the risks and explaining the dangers to the public and to policy makers so that preventative measures can be immediately undertaken -- for example, permanently	No reply needed.

		lowering the Lake level so that estuary discharges can be eliminated permanently. Your urgent attention is required. Thank you.	
<b>Public submission</b>	William Randall <a href="mailto:billafi@gmail.com">billafi@gmail.com</a> Status: posted Posted 11/14/19 Tracking no. 1k3-9db2-wgf3	I strongly support this study. Aerosols from cyanobacterial blooms affect everyone and everything. This is especially critical to those living in and near the water. Without further knowledge, it is difficult to assess the potential damage that these blooms pose to the entire South Florida population.	No reply needed.
<b>Public submission</b>	Joyce Edwards No email provided Status: posted Posted 10/31/19 Tracking no. 1k3-9d0n-zz88	Hi. Thank you for taking comments. The first year we moved to Palm City, FL, in 2013, before we knew about the algae bloom problem, our son, who was 14 years old at the time, received a very painful rash on the bottom of his feet and many other parts of his body right after swimming in the St. Lucie River, which we later found out had an algae bloom problem	No reply needed.
<b>Public submission</b>	Felicia Bruce <a href="mailto:Spmomtch1@aol.com">Spmomtch1@aol.com</a> Status: posted Posted 11/1/19 Tracking no. 1k3-9d22-7pxv	I live in St Lucie County. I have firsthand knowledge of the algae blooms and how they impact our environment, economy, recreation and health NONE of it is positive! But that should come as no surprise. They look ugly. They smell awful. If they come in contact with mammals , whether domestic pets or humans, illness and infection follow. By all means, study them. Confirm what common sense tells you without scientific data: blooms are harmful to all living things. Perhaps the study will find that the cause is a trifecta of offensive ingredients: warming waters, polluting farmers and dirty pesticide and agricultural runoff. More important: let's hope scientific study finds a quick, cost effective preventive/solution so we may sustain a healthy web of life with natural beauty preserved.	No reply needed.
<b>Public submission</b>	Veronica Cabrera <a href="mailto:Vcab25@gmail.com">Vcab25@gmail.com</a> Status: posted Posted 11/13/19 Tracking no. 1k3-9da1-j0hp	We live in Miami. I rented a condo on the beach on Marco Island, Florida during late May of the Summer of 2018. I brought my aging mother and her elderly aunt to try to relive fond memories from my childhood. We were plagued by fish kills washing up on the beach due to the red tide. The beach smelled horribly due to the mass of dead fish and we couldn't even sit down at the beach for extended periods of times because we would begin to cough due to the brevetoxins in the air. It is very possible that some of the toxins causing the coughing may have been microcystin in the air as well. I couldn't let my Mother's aunt sit outside for any significant period of time for fear that she may	No reply needed.

		<p>have a fit of coughing. Then there is the looming possibility that she may be accumulating these toxins in her body. Also, I might be and so might my mother. Who knows what the long term neurological effects are.</p> <p>We also heard that the high nutrient levels from Lake Okeechobee discharges could be contributing to an enhanced red tide bloom. At the same time, at my home in Miami, for the first time on record, we also had documented red tide blooms. I felt like there was no safe place to live or even breathe in South Florida. My vacation experience was tainted and I felt sad that mismanagement of our precious waters in Lake O contributed to a decline in the ability to enjoy the outdoors at my home and at my childhood vacation spot. The inability of our State and Federal Governments to be honest with the public about health risks is completely unacceptable. So is the the lack of prioritization of human health and safety in regards to the standards of our water quality. Not to mention the completely unacceptable the impacts and destruction to the environment. I do not understand how our government could be so inept. I request that the CDC does something to fix this situation for the better.</p>	
<b>Public submission</b>	<p>Bonnie Daniels  <a href="mailto:bonnieleedaniels@gmail.com">bonnieleedaniels@gmail.com</a>          Status: posted          Posted 11/13/19          Tracking no. 1k3-9d9s-nm1l</p>	<p>I strongly support the CDC's proposed study to examine exposure and health effects of aerosols from cyanobacterial blooms on highly exposed populations in Florida during the next active algae bloom season. This is an urgent concern not only to Florida residents, where extensive cyanobacterial blooms have become a regular occurrence, but to people in many other areas across the country. If it is indeed the CDC's mission to protect the health and safety of our people, and to that end, to "conduct critical science and provide health information that protects our nation against expensive and dangerous health threats" (<a href="https://www.cdc.gov/about/organization/mission.htm">https://www.cdc.gov/about/organization/mission.htm</a>), then conducting this study is totally within your wheelhouse and should be a 'no-brainer.'</p>	No reply needed.
<b>Public submission</b>	<p>Denise Hart  <a href="mailto:Denisehart1000#@yahoo.com">Denisehart1000#@yahoo.com</a>          Status: posted          Posted 11/13/19          Tracking no. 1k3-9d9u-g0du</p>	<p>Thank you for the opportunity to comment. It is imperative for the CDC to become involved in studying the human health impacts of exposure to Cyanotoxins. In Florida, it is a public health issue that has not significantly been studied or addressed. There are few, if any, warnings provided to the public, no signage at affected public areas, and no</p>	No reply needed.

		<p>information about how to report observable side effects, much less any long term studies. Yes, its true weve lived with this a long time in Florida. Its also true that we better understand some of the consequences of exposure to aerosols from Cyanobacteria blooms. The potential long-term health impacts could affect so many families.</p> <p>Cyanobacteria is not limited to Florida and so should rightly be a concern of the CDC. In my former home state of New Hampshire, we were having regular Cyanobacteria blooms occurring in freshwater lakes, often in residential areas. Once again, the long term studies investigating human health impacts were nonexistent. Community education about the blooms was also poor to nonexistent.</p> <p>The CDC has an important role to play in organizing studies about the human health impacts of HABS in general and in this case Cyanobacteria in particular. The states needs your assistance. The American people rely on your objective studies to help inform our health practices. The human health impacts of Cyanobacteria blooms have the potential to become economically crippling health issues. And indications are the proliferation of HABS is only growing larger.</p> <p>Thank you, Denise Hart</p>	
<b>Public submission</b>	<p>Harriette Weller No email provided Status: posted Posted 11/13/19 Tracking no. 1k3-9dac-57ve</p>	<p>This study is very important in learning how to protect the health of citizens who are exposed because of the blooms that occur. To continue this study will help develop ways to understand how our health is affected and to learn ways to help protect our lives/</p>	No reply needed.
<b>Pubic submission</b>	<p>Steve Kantner <a href="mailto:landcaptain@comcast.net">landcaptain@comcast.net</a> Status: posted Posted 11/13/19 Tracking no. 1k3-9d9w-m9v3</p>	<p>I live on the east coast--specifically Ft. Lauderdale--approx 2 1/2 miles from the beach. Once, during the last Karenia "bloom," both a neighbor and I whose patios face east, developed moderately-severe respiratory symptoms whle the wind blew SE</p>	No reply needed.
<b>Public submission</b>	<p>Angie Cloutier <a href="mailto:angiecloutier@me.com">angiecloutier@me.com</a> Status: posted Posted 10/29/19</p>	<p>Hi, I just wanted to make you aware of what is happening here in my town of North Fort Myers. I live on the banks of the Caloosahatchee River. Last summer, when the algae bloom was severe, I was having a pool installed into my yard. My contractors all got sick. My son took a</p>	No reply needed.



	Tracking no. 1k3-9d0e-bmlb	<p>paddle board out on the river. When he got home, he went to bed and didn't get up for 2 days!! The smell is not something that can be described. It is absolutely horrible. If you take a stick and run it through the blue green clumps, it is poop underneath! It smelled like a septic tank! And my family and I had to live like that for months on end. My well is located along the banks of the river. Was the algae getting into my drinking water????? I didn't know so I had to go on a hunt to find a laboratory that would come out and check my well. Most places that come check your well do not check for blue green algae. I had to find that specialized lab and then PAY FOR IT OUT OF MY OWN POCKET!!!!!! I am horrified that we are dealing with such a mess at this point in history. I remember when the Hudson River was cleaned up. Don't we know better by now???? This needs to change and it needs to change yesterday. The Army Corp not doing their job of getting their report back to the Legislature within the 90 days they were allotted is absolutely unacceptable. I say "do your job or get fired". If it was me not doing my job, I certainly would be fired!!!! Why do they get a pass? I don't want to give them one. I want this whole thing cleaned up -- NOW..Before summer next year. The health issues are horrendous. I have a constant cough. I can tell when more water is being sent down the Caloosahatchee and when it is not. I am sure there are a lot of us here that have the same issue. Not to mention all of the dolphin, manatee, turtles and fish that are being killed. Again, if that were me killing a manatee, I'd be in jail. Let's get off the political agenda and fix the problem.</p>	
<b>Public submission</b>	<p>Anonymous No email provided Status: posted Posted 11/14/19 Tracking no. 1k3-9daf-9cke</p>	Please do any studies possible for this out of control issue	No reply needed.
<b>Public submission</b>	<p>Anonymous <a href="mailto:len@motocom.com">len@motocom.com</a> Status: posted Posted 10/29/19 Tracking no. 1k3-9d0c-ngza</p>	<p>My family moved to Cape Coral Florida just before the cyanobacterial bloom events. Everyone in our family experienced respiratory irritation with some of us developed ongoing headaches. I am a fisherman and spend a lot of time on the water. I frequently experienced irritation of my eyes, throat and ears with ongoing skin irritation. Shortly after leaving the area all of our symptoms went away. Upon returning the symptoms came back. I do not feel safe living near the water or</p>	No reply needed.

		ingesting the fish from the water any longer	
<b>Public submission</b>  <b>150</b>	Sandra Whitley <a href="mailto:sandyfl@comcast.net">sandyfl@comcast.net</a> Status: posted Posted 11/13/19 Tracking no. 1k3-9d9s-gmhy	I strongly agree with Katrina Muros as to the need for study to have a wider area if sampling. Please take this under consideration for a more scientific approach to this widespread health issue.	No reply needed.
<b>Public submission</b>	Jacqueline Trancynger <a href="mailto:realsquack@aol.com">realsquack@aol.com</a> Status: posted Posted 11/19/19 Tracking no. 1k3-9ddr-kuje	I am 85 years old and moved from NYC to enjoy nature ...the ocean, rivers, native plants, rivers, lagoons, fishing. I wanted to do the things in my retirement that I could not do in Queens and Brooklyn all my life. I cannot do many of those activities any longer. First if all I am worried about the young people who will bear the brunt of the toxins more than I will in their future lives. But I will not eat local fish and I will not even go into the ocean. I have a bleeding and healing problem on my legs which will not allow me to go into "suspicious" water...people have died, a dog died and many of my neighbors whose noses were swabbed had positive readings for the toxicity I want you to continue with this study, this collection of information is absolutely necessary for CDC to do their job. I want you to enhance the quality, utility and clarity of your information collected. Employees MUST be informed about their risks. You must be aware of the loss of businesses, tourism and all the other negatives we have suffered in the past years while the Sugar industry gets all the water they need, keeps land that we need, refuses to cooperate with the population all based on profit motive . You must look at the sugar industry as you eventually looked at the tobacco industry and being complicit in the death of Americans Please help the citizens of South Florida and the whole environment of the state....we need clean water and air.....do nothing and you sentence our children to an unhealthy life.	No reply needed.
<b>Public submission</b>	James Vopal MD <a href="mailto:drvopal@tbcctc.com">drvopal@tbcctc.com</a> Status: posted Posted 11/18/19 Tracking no. 1k3-9dbv-9nku	I have resided on the north fork of the St Lucie River in Martin County FL for 35 year noting increasing organic pollution of the river, culminating in the tragic cyano-bacterial algae blooms in 2017 & 2018, resulting animal & aquatic species deaths & human illnesses. Over these 35 years , I have observed the disappearance & decease in numbers of multiple marine ,bird	No reply needed.

		<p>&amp; aquatic species, including conch, horseshoe crabs, blue crabs, oysters, mullet, tarpon, snook, sea trout, bottlenose dolphin heron, ibis, cormorants, osprey and manatees. This is no coincidence! We now have increasing numbers of human illnesses reported including non-alcoholic liver cancer, water related wounds/ infections, some fatal and upper respiratory illnesses after exposure to the river aerosol. We do not know what the long term health affects will be to the continual and repeated exposure to the river aerosol, especially during windstorms.</p> <p>As a physician in the community for all these years , I have seen increases in other cancers and debilitating neurologic diseases in people who have lived or worked on the river with aerosol exposure.</p> <p>It is time to ACT! We need to know how these aerosols containing cyano-bacterium &amp; their toxins are affecting our CHILDREN !</p>	
<b>Public submission</b>	<p>Daniel Koich  <a href="mailto:Dankoich715@gmail.com">Dankoich715@gmail.com</a>  Status: posted  Posted 11/13/19  Tracking no. 1k3-9da1-jasq</p>	<p>I certainly and strongly support the idea of conducting the study proposed by the Center For Disease Control, CDC-2019-0079. I believe that this problem needs great public awareness. I encourage the CDC to be very diligent and widespread in publishing and disseminating the results of this study to the general public, and with special emphasis on educating the members of Congress in Washington and providing the results of this study to the natural resource protection agencies across the country.</p> <p>Steps are in place across the nation, and very actively here in Wisconsin, to curb the sources of nutrients that promote the excessive growth of these toxins. Specific examples from scientific studies are crucial to the ongoing process of educating. We can say without doubt "Here's what happens if we don't take steps to.....curb polluted runoff from reaching our waterways" ...or what happens if we don't manage our water levels... or what happens if we don't control our discharges".</p> <p>Please make sure that the results of the study become public knowledge.  Thank you.</p>	No reply needed.
<b>Public submission</b>	<p>James Kurtyka  No email provided  Status: posted</p>	<p>Its hard for me to believe I have to right this,,  I moved to southwest fl for the pristine environment , I would never</p>	No reply needed.

	<p>Posted 11/13/19 Tracking no. 1k3-9d9s-669w</p>	<p>have thought I would be writing on how irresponsible Government has been to acting on the water issue's here..</p> <p>at times red tide is so bad I can't go in my own garage ...nevermind our boat or to the beach</p> <p>same with this algae blooms.. we have lost a half of million dollars just in property value since red tide..</p> <p>it appears our leaders lost sight of the connection between the environment and property values and business here in FL.</p> <p>we need action and we need it yesterday ,,,,</p> <p>thank you</p> <p>Jim 9222 vanderbilt Dr</p>	
<p><b>Public submission</b></p>	<p>Joanne Gruber No email provided Status: posted Posted 10/31/19 Tracking no. 1k3-9d18-rc30</p>	<p>Hello. This is an extremely important issue - please give it significant time and attention. Aside from the deleterious affects on our natural wildlife, HABS are hurting my friends here in Cape Coral FL. Many were housebound, unable to enjoy their outdoor properties. Last summer one required serious nasal surgery after blooms in the water behind her home. Another bloom like that and this 12+ year resident is out of FL. Obviously there were no days at the beach or time on boats. People live / visit FL for its precious water related amenities. PLEASE HELP US. Really this is NOT an ACOE issue, it's an environmental issue, not an engineering item.</p> <p>Thank You. We need the attention on this harmful situation.</p>	<p>No reply needed.</p>
<p><b>Public submission</b></p>	<p>Albert Marra <a href="mailto:tonytke@yahoo.com">tonytke@yahoo.com</a> Status: posted Posted 11/18/19</p>	<p>The toxic bloom is destroying South Florida.</p>	<p>No reply needed.</p>

	Tracking no. 1k3-9dbs-5uw7		
<b>Public submission</b>	<p>Anonymous  No email provided  Status: posted  Posted 11/13/19  Tracking no. 1k3-9d9s-bskg</p>	<p><b>Comment</b>  View document:  I suspect problems in our air in all communities in southwest Florida. I am a previously healthy retiree until the spring of 2018 when I developed breathing difficulties whenever fishing in the Peace River near Punta Gorda, Fl. The problem persists after extensive pulmonary and cardiac testing with negative results. I, therefore, have no medical documentation to support my suspicions, only persistent symptoms whenever on or near the river and canals of Port Charlotte and Punta Gorda. A study into the aerosol distribution of pollutants would be a necessity, the sooner the better.</p>	No reply needed.
<b>Public submission</b>	<p>Cathy Harris  <a href="mailto:Michael-cathy@comcast.net">Michael-cathy@comcast.net</a>  Status: posted  Posted 11/5/19  Tracking no. 1k3-9d2n-dbrh</p>	<p>As a resident of Naples, this study is imperative and I highly support its implementation. It seems that everyone is starting to fall ill here and I am almost afraid this study is too little too late. Our government cares more about letting corporations make profits over the health of its peoples. This is so sad.</p>	No reply needed.
<b>Public submission</b>	<p>Toby Hillen  <a href="mailto:Toby_hillen@yahoo.com">Toby_hillen@yahoo.com</a>  Status: posted  Posted 10/7/19  Tracking no. 1k3-9cl3-xi8x</p>	<p>This testing really needs to be done, and also done along the Caloosahatchee River. I live in Ft Myers a d in toxic 2018 when we had the massive blooms from Lake O releases and along the river many of us, including myself was made very sick from breathing this. This study needs to be expanded and push to the utmost importance. I dont ever wanna be that sick again I had multiple Dr a d ER visits. Thos was not due to my health as in Aprli of 2018 I was given a clean bill of health, as soon as the releases started in June along with the massive fish kills my health deteriorated very rapidly. FWC need to stop spraying into our waterways. Who os going to help me recover er not only the health Bill's but the loss of income due to these visits and the loss of my job from being sick (I worked on Sanibel Island at the time). This</p>	No reply needed.

		<p>whole thing is really disturbing that yall just let this go unchecked.</p>	
<p><b>Public submission</b></p>	<p>Carol Ann Leonard  <a href="mailto:bonbinifromcal@aol.com">bonbinifromcal@aol.com</a>          Status: posted          Posted 11/5/19          Tracking no. 1k3-9d2l-wzga</p>	<p>I live in Stuart, Florida. Off and on for years now we have been plagued by blue green algae or Microcystin or cyanobacterial as it's called. It forms in Lake Okeechobee mainly in the warm months. The Army Corp of Engineers, for years, have been discharging water from the lake into the Indian River running east to the Atlantic Ocean and in the Calloosahatchee River running west to the Gulf of Mexico. They do this to keep the lake water at a certain level that won't compromise the dike around the lake. They are strengthening the dike but it's not finished yet. The algae gets in the rivers and then forms huge amounts of a green glop. It kills fish. It has been linked as I understand to increasing the natural Red Tide outbreak in 2018 in the Gulf. In 2018, for one year and one other year in the past, we had the most horrible affects out of the several years. A green glop covered the Indian River Lagoon all around Stuart. It was so bad in 2018, that a dog exposed to it perished. People living near the water had it get into their noses via it becoming airborne. I live only a few short miles from the Sandsprit Park area which was also contaminated in the river next to the park. I don't know if I was affected. I never looked into being tested. I've been told that the algae will adversely affect humans. The liver is affected for one. In one of the years, the algae made it out into the ocean. Stuart Beach and Bathtub Beach had to be closed. I think it went south too. In the huge Red Tide outbreak that year the RT went around the tip of FL and up the east coast in Atlantic all the way to at least Vero Beach, which is north of Stuart. I don't think this had ever happened before. In</p>	<p>No reply needed.</p>

		<p>2019 the Corp. changed the discharges. The corp. kept the lake level at 11 feet earlier to reduce discharges. They stopped the east/west ones. They store and release water north and south for now. The St. Lucie River has been clear of the algae this year. More needs to be done to stop the phosphorus and nitrogen from fertilizers from agriculture, public entities such as golf courses, etc. from being released into the Kissimmee River north of the lake that empties into the lake and agriculture such as Big Sugar, that release them from areas around the lake. These "nutrients" as the phosphorus and nitrogen are called, contribute to the growth of the mycrocistin algae also called the cyanobacterial. This algae has also been found in Lake Erie in the past and along the Gulf Coast ocean near Mississippi as I recall in 2019. It's found in other areas of the world now.</p> <p>The cyanobacterial algae was also found in Blue Cypress Lake Recreation Area north of me in Florida. that doesn't get water from Lake Okeechobee. However, a farm near the lake used bio solids from treated water from sewage treatment plants on their agriculture fields!!! This resulted in a leach into the lake and the formation of the algae. We don't need bio solids on our food crops!!!!!! There must me more than one cause for the algae formation and all need to be addressed and stopped.</p> <p>Some people depend on fish from the St Lucie River and Lake O for food. They can't eat fish exposed to the algae. The businesses around Lake O and especially in Stuart suffered economically from the algae bloom in 2018 and the other big prior one. We have to stop polluting our rivers, lakes, streams and oceans.</p>	
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<p><b>Public submission</b></p>	<p>Joseph L Gilio  <a href="mailto:jgilio@mac.com">jgilio@mac.com</a>          Status: posted          Posted 11/18/19          Tracking no. 1k3-9dbt-6w71</p>	<p>Aerosol inhalation of HAB populations in inland lakes is a valuable exercise to determine human exposure intake vs. time of exposure on lakes, blood levels, liver enzyme reactions, etc. This information may provide future guidelines for human habitation, occupation and recreation in and around HAB exhibiting lakes.</p> <p>My expertise is limnological, namely, a scientific reduction to elimination of the nutrient levels of nitrogen and phosphorus within the lake's ecosystem. That means chemically sequestering the phosphorus either into the sediments of a deep lake as performed for Lake Newell, WA or the current concern of almost annual <i>Microcystis aeruginosa</i> blooms within Lake Okeechobee, FL and its releases to the Caloosahatchee and St. Lucie Rivers. Such release of a fresh water lens hitting a salt water estuarine wedge causes massive lysis release of the toxin, microcystin, increasing its concentration in surface waters adjacent to several million local residents.</p> <p>Lake Okeechobee can be rejuvenated &lt; 100 ppb total phosphorus by alum sequestration in the water column followed with hydraulic suction dredging of the aluminum hydroxide/phosphorus/organic debris out of contact with the water /sediment lake interaction. This dredge spoil would contain up to 50,000 metric tons of TP, thereby reducing the sediment to water transfer sufficient to attain the TP level &lt;100 ppb, a level, sufficient to reduce <i>M. aeruginosa</i> HAB's for an indeterminate number of decades.</p>	<p>No reply needed.</p>
<p><b>Public submission</b></p>	<p>Mike Downing  <a href="mailto:md2201@aol.com">md2201@aol.com</a>          Status: posted</p>	<p>While microcystin is a hepatotoxin and can cause significant liver damage and while cyanobacteria toxins should be</p>	<p>No reply needed.</p>



<b>162</b>	Posted 11/13/19 Tracking no. 1k3-9d9s-qm2z	studied around Lake O., I believe the neurotoxin BMAA will prove to be a far more significant toxin that needs to be studied and should be studied on the West Coast and East Coast after cyanobacteria dies when it reaches saltwater.	
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## **Response to Diana Umpierre, Sierra Club**

To: Diana Umpierre  
Sierra Club

Thank you for your response to the Federal Register Notice Docket No. CDC-2019-0079. Your questions and our responses are below. Sierra Club recognizes the importance of this study and supports it as a starting point for the more comprehensive effort that is required to better understand and prevent the human health impacts from re-occurring cyanobacteria blooms in Lake Okeechobee and connecting waterbodies. Please note that in accordance to the federal register notice, we contacted the CDC's Information Collection Review Office to request a copy of the "information collection plan" prior to the deadline for public comment, but did not receive the plan. In as much, we are not sure if all or any of the questions listed below were addressed in that plan. Nevertheless, we ask that you respond to our below comments and questions to ensure revisions are made to improve the overall study.

**☒ To increase the usefulness and reliability of the study, we request that the study be expanded to include people that are also highly exposed to cyanotoxins on other waters connected to Lake Okeechobee, including the St Lucie, Caloosahatchee and Lake Worth Lagoon estuaries.**

We plan to do our best to include people whose activities will bring them in contact with areas that historically bloom, including the areas where rivers flow from Lake Okeechobee.

**☒ Is a sample size of just fifty (50) participants a statistically valid sample? The sample size is low in comparison to the CDC studies conducted in 2006 and 2007 referenced in the federal register notice.**

Yes, I've included our sample size calculations below. In addition, based partly on public comments, we have expanded the study population to include anyone likely to be heavily exposed. We increased the sample size to 200 and reduced the number of "trips" (now called study days) to 5 per person.

## Study power

### **Sample size calculations**

There is little information about the health effects from exposure to cyanobacterial toxins available in the literature. To estimate the potential sample size needed for this study, we used data from Falconer et al (1983). Falconer et al (1983) compared clinical test results for liver enzyme levels in hospitalized patients in an area served by a drinking water source with an ongoing *Microcystis aeruginosa* bloom with test results from hospitalized patients from an area with no bloom in the drinking water source. *M. aeruginosa* produces microcystins, which are potent liver toxins that induce changes in blood levels of liver enzyme.

Approximate concentrations of liver enzymes in study by Falconer et al. (1983). Bolded numbers show increases during bloom compared with before the bloom in populations exposed or unexposed to drinking water from a source with a *Microcystis aeruginosa* bloom.

Enzyme ( $\mu\text{L}$ in plasma)	Residents with Malpas Dam water supply (exposed). Values estimated from graph. N=145		Country residents with different water supply (unexposed). Values estimated from graph. N=145	
	Before Bloom, mean (SEM)	During Bloom mean (SEM),	Before Bloom, mean (SEM)	During Bloom, mean (SEM)
GGT	43 (4)	<b>102 (18)</b>	60 (8)	55 (8)
ALT	25 (4)	<b>36 (8)</b>	30 (3)	30 (4)
AST	24 (3)	<b>26 (3)</b>	26 (3)	24 (2)
AP	71 (2)	<b>72 (3)</b>	81 (2)	<b>87 (3)</b>

SEM = standard error of the mean

Assumptions for calculation assuming simple random sample:

- Random sample
- Independence of data
- Sample size of 871 evenly distributed across three time-periods and 2 places (6 total)

o N=145 (12)

- NOTE: Repeated measurements formula would need to include the estimated variance of the differences

Formulas:

Two-tailed test:

$$n = [ (Z_{\alpha/2} + Z_{\beta})\sigma/E ]^2$$

$Z_{\alpha/2} = 1.96$  for 95% confidence

$Z_{\beta} = 0.84$  for 80% power

power =  $(1-\beta) \times 100$

$\sigma$  = estimated variance

$\sigma = \sqrt{n} \times \text{SEM}$

E = maximum error of estimated mean (or null) vs alternate hypothesis values (from paper)

One-tailed test:

$$n = [ (Z_{\alpha/2} + Z_{\beta})\sigma/E ]^2$$

$Z_{\alpha/2} = 1.65$  for 95% confidence, one-tailed test

$Z_{\beta} = 0.84$  for 80% power

power =  $(1-\beta) \times 100$

$\sigma$  = estimated variance

$\sigma = \sqrt{n} \times \text{SEM}$

E = maximum error of estimated mean (or null) vs alternate hypothesis values (from paper)

Estimation of sample size using results from study participants before and during exposure

Enzyme ( $\mu\text{L}$ in plasma)	$Z_{\alpha/2}$	$Z_{\beta}$	$\sigma$	E	N: two-tailed test	N: One-tailed test
GGT	1.96	0.84	48	59	5	4

ALT	1.96	0.84	48	11	149	117
AST	1.96	0.84	36	2	2,520	2007
AP	1.96	0.84	24	1	4,515	3571

Formula:

Summary of sample size considerations:

Our planned sample size of 50 participants should give more than 80% power to detect changes (i.e., approximately a doubling) in liver enzyme levels with 95% confidence, assuming that the values will increase with exposure.

**? What criteria are being used to define “highly exposed population”?**

The study population will include people who are occupationally exposed to Lake Okeechobee and connecting rivers as well as community members who live along the lake and rivers.

**? How will “extensive occupational exposure” be determined?**

We will work with Florida Department of Environmental Protection and when they identify a bloom, we will proceed to recruit participants (see description of participants above).

**? Will this study also include people that fish frequently along the shores of Lake Okeechobee and associated water control structures, such as areas by Port Mayaca where fishing is also popular with residents in the area?**

Those individuals will be able to volunteer to be in the study if a bloom happens near where they work or live.

**? Are all boat trips required to be on Lake Okeechobee itself, or would boat trips to connecting rivers/canals having active cyanobacteria blooms also be included? The study will be more useful and comprehensive if it includes the connecting waters.**

The protocol states that we will include Lake Okeechobee and connecting rivers.

**? Where (what geographies, what types of businesses) will the flyers be posted to invite participation, and for how long? Will the flyers be also available in Spanish and Creole to ensure participation is not restricted to people fluent in English? Note: In the populated areas around Lake Okeechobee, there are people living there that are more fluent in other languages.**

The flyers will be posted in areas where the bloom occurs. CDC will work with Florida DOH to address translating flyers to different languages as appropriate.

**? Will the CDC clarify from what geographic areas participants will be sought?**

The geographic area will depend on where a cyanobacterial bloom develops.

**? Will the study account for potential changes in behavior of participants in the study, such as selection of fishing locations to avoid areas that have observable signs of cyanobacteria?**

CDC will ask study participants to wear personal air samplers (or place one in their workspace); so we anticipate being able to capture information about the specific exposure people have.

**? Will the survey screening potential participants include questions to help determine any biases they may have towards the study? An example of such potential bias was noted in an article by Lake Okeechobee News, where an angler interviewed stated "some anglers may be willing to participate just to prove there are no health issues for those fishing the Big O" and that "others are concerned that... national media will use the fact that CDC is studying the lake to put Lake Okeechobee in a bad light". <https://lakeokeechobeenews.com/lake-okeechobee/public-comment-sought-on-cdc-plan-tostudy-lake/>**

Participating in the study is voluntary. Our study criteria for participation include being at least 18 years old and spending at least two hours each day outside. We cannot specify how participants answer questions.

**? Does the NOAA satellite data to be used in the study and compared to boaters' GPS trip logs include cyanobacteria presence below the surface? How far down in the water can the satellite data detect cyanobacteria?**

CDC no longer plans to collect the GPX file to compare with NOAA data.

**? Will the timing of boat trips include periods of decomposition of the cyanobacteria blooms?**

Yes.

**? What time of the year and for how long will the study be conducted?**

It depends on when the bloom starts.

**? How will CDC use the fish test data? Will it take into account that different fish absorb/digest cyanobacteria toxins differently?**

CDC is collecting fish for analysis by EPA. EPA scientists will test the fish for cyanotoxins.

**? For which types of cyanotoxins will participants, and the fish they donate, be tested? Will the study include testing for anatoxins and BMAA?**

CDC plans to test all samples and specimens for microcystins and nodularins. We will test a subset of samples and specimens for BMAA. We plan to store specimens and samples (with participants' permission) and conduct further analyses when resources become available.

**? Will the participant survey include questions on whether they consume fish that they catch and the frequency of such consumption? Will the CDC study include health impacts from ingestion of contaminated fish since research has shown that fish can accumulate cyanotoxins, such as microcystin?**

CDC will consider asking questions about fish consumption.

**? Where will participants go for their appointments and to donate fish from their boat trips?**

CDC modified the protocol and will be going to see study participants where they live or work.

**? Will the study only monitor short versus long term effects of exposure to cyanotoxins, such as liver issues from microcystins?**

CDC will monitor short term symptoms and the effects of exposure to cyanobacterial bloom aerosols over the bloom season.

**? Will the participant screening/ surveys include socio-demographic questions as well as questions that could help factor in potential cognitive/mental health effects from cyanotoxin exposure?**

CDC will ask only the questions needed to accomplish study goals. We do not plan to ask questions about cognitive function.

**? Will the study take into account that the sex of participants and/or other genetic factors may affect participants' vulnerability to cyanotoxins?**

CDC will ask for participants' sex as that is important in interpreting the lung function test data.

**? How will survey participants be informed of their individual test results, such as the blood, urine, nasal swabs, pulmonary tests, in a timely manner? Will those individual results be shared with them so they can follow up with own physicians?**

Study participants will be provided with the results from their lung function tests and blood tests. We do not know how to interpret any results from analysis of cyanobacterial toxins and so will not provide those. Study participants are free to share their results with their physicians.

**? How will you inform participants of the full study results and associated health risks?**

Participants will receive individual letters with results as discussed above. Aggregated results will be published in peer-reviewed journal.

**? How long will it take for study results to be publicly available?**

Probably about 2 years as CDC must wait for analytic results, review data, analyze data, and prepare study results for publication.