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### Is Desalination The Answer For Water Shortage?

The book, The Future of Life, by Edward O. Wilson, made me look at life in a whole other way. His book gave me a sense of insecurity about human existence, with all the changes within our climate and the scarcity of our natural resources. I began to think about our primary need of survival, which is water. Water is one of the world's scarcities that he mentions in his book and in order for us to fix that problem, we have to come up with a way to provide more fresh water to help human existence or we will die of thirst. Growing up, I had always known that 70 per cent of the earth was made up of water, but I began to question myself, "How difficult it is to get water, since most of the earth is made up of water?" I know that the ocean contains salt, but I figure if we just separate the water and salt, known as a process called "desalination" ("Top 10: Oppose Ocean Desalination"), fresh water will be accessible. But it's not that easy. According to the article, "Sea change for drinking water," the author, Fred Pearce, stated that "only 1 per cent of the world's drinking water comes from desalination" (Pearce 22). That amazed me, because I assumed with the advanced technology today, a problem like this would have been solved by now. My heart says that we need to keep striving to better the desalination process.

But you and the other members of the Food and Water Watch think otherwise. I know that you are a non-profit organization, where you all "challenge the corporate control and abuse of our food and water resources by empowering people to take action and by transforming the public consciousness about what to eat or drink" ("About"). I understand that's your mission

and it's excellent, but you all can't come up with reasons and arguments opposing the use of desalination without sufficient research. Your company said, "It doesn't work, it's expensive, fisheries and marine environments will be threatened, ocean desalination promotes environmental and social injustice, alternatives abound, privatization is risky, air pollution and wasted energy, questionable water quality, overdevelopment of coastlines and oceans are a common good" ("Top 10: Oppose Ocean Desalination" 1). I understand the information that you all researched might be extremely factual. My concern is that desalination is basically the only working process that will conserve water and end our water shortage. Also, with the large population growth that is increasing ever year, the demand of water will be highly needed. Instead of trying to disapprove desalination with your examples, you need to not give up on desalination because there are other researchers out there figuring out ways of improving tasks that desalination holds.

One way of improving the earth water shortage is by building more desalination plants around the world. The process will be quicker and the percentage of fresh water will rise. In your article, "Top 10: Oppose Ocean Desalination," states that the United States and a couple of other countries only use one type of desalination process, which is called "reverse osmosis" (1). This is when saltwater is pushed through a small filter by a high powered pressure system to create drinking water for people. You do not consider this an effective process, because it doesn't fully clean the water and the process is too slow, making it unrealistic for this process to be a success. Also, you all stated that all the countries that contain these developments for desalination only have "limited environmental requirements and different site conditions that make it feasible" (1). You all may be right in a way; however if you all consider in doing more research and less bickering, maybe you might come up with solutions for that problem. In the

article, “Finding more water,” written by Peter Easton, he acknowledges two scientists, Pat Brady and Tom Hinkebein, who struggled trying to improve the desalination process. Easton states their roadmap to make the desalination process more drinkable for people. In 2003, they gave Congress their goals to first recognize the problem by setting up meetings with some of the highest water councils and organizations around the world. They outlined a plan to attack certain regions to build desalination plants in areas where there is non-drinkable water, so they can make certain that other organizations do not copy their research. With them setting up 43 new research areas in 2006, their focus was mainly on

Membrane technologies that desalinate and purify water by pushing it through a semi permeable membrane that removes contaminants

Alternatives technologies that take advantage of nontraditional methods

Concentrate management technologies that consider the disposal, volumetric reduction, beneficial use of the mineral by products of desalination

Reuse and recycling technologies that examine the ways membrane and alternative technologies must be designed to handle increase contaminants loads (42).

Not only Brady and Hinkebein took it upon themselves to develop that many desalination plants in America, but the Middle East is said to develop almost 7,500 desalination plants to produce more fresh water (Easton 42). In my perspective, the additions of more desalination plants are improvements in trying to solve the earth’s water shortage, which is highly effective.

Then after your excessive criticism about building desalination plants, you all said in general that desalination will be entirely too expensive to afford. (1) In your article, “Top 10: Oppose Ocean Desalination” (1), you describe ocean desalinated water being “the most expensive water supply” (1), also stating that the cost to produce ocean desalination water will be

“at least five times more than the cost of conserve water” (1). You have to realize that this process is the answer to the water shortage and the dependent of human existence. Whatever amount of money is needed to be financed for this cause, we should be willing to invest in it. You should not accuse the water companies for recommending desalination plants. According to the author, Andrew Laing, “We should not blame the water companies for proposing desalination plants, but we should insist that regulators make it easy for consumers to compete for the opportunity to match supply to demand” (Laing 23). An incentive for the water companies to contribute more research in desalination might be that water companies will need to be given the proper equipment like “tanks, pumps and controllers” (Laing 23) for free, so they don’t have to worry about an impediment like cost. It will make it very simple and accessible for water companies to further their research. If the world can spend their money towards investing into wars to fight, why can’t they come together and invest in solving this water shortage, because this problem can affect the world as a whole.

Also, you all stated that the leftover salt in experimenting with the desalination process, could affect the ocean and the coastlines. Your article, “Top 10: Oppose Ocean Desalination,” states that in an area like California, the “aquatic life” is being destroyed follow by the plants and beaches around the coast because of desalination; “only 5 per cent of the coastal wetlands and estuaries remain” (1). Also, your article says with all the animals and plants that are dying, it will be swept up against the coast of California, which will set boundaries on people going to the beach (1). Scientists have come up with a process to prevent leftover salt to be on beaches or the coastal line. A new method of desalinating water has been developed by researchers from the New Jersey Institute of Technology. They figure that if they use cheap low-grade waste heat as fuel, the salt solution will evaporate from the brines holding the salt, which the vapors will pass

through a “nano-sized pores in a membrane to wind up condensed in the cold water on the membrane’s other side” (“Desalinating water” 39). From a competitive standpoint, other countries are taking part in this. Right now in South Africa, the Water and Process Technologies is designing a way to “recover ultrapure salt from the concentrated brine stream for the production of chlorine, caustic soda, and hydrochloric acid at the refinery” (Lozowski 83). In Australia, “the Renewable Energy Group of RMIT, University’s School of Aerospace and the Mechanical and Manufacturing Engineering recently completed a field demonstration in northern Victoria to harness solar-thermal energy to turn seawater and saline groundwater into fresh water” (Ondrey 16). Developing better, more economical desalination processes might be an economic advantage for the United States, helping to provide jobs and create a more environmentally aware business climate, which would certainly be something you could support.

While I was reading your article, “Top 10: Oppose Ocean Desalination,” I noticed that you do not give a variety of viewpoints because people may not think the same as you or your source. All you focused on was information about California, which came up in different paragraphs. There are other places around the world instead of California or even America that uses desalination, which makes me think that the source you receive your information from came from only one reliable source. Also, I did not see anywhere in your article how desalination is helping the world, because there are actually stories where desalination was successful and not just negative. This makes me wonder if your obsession with activities in one state may provide a barrier or impediment to your seeing progress in desalination elsewhere.

There are plenty of stories where desalination became highly successful and productive. For instance, in the article, “Success Stories,” researchers states their roadmaps in 2002 to “increase the water management flexibility and reliability in the Western U.S” (1), since you

focus on California a lot. One topic they discussed is “new water from desalination research” (“Success Stories” 5). They said that the research will “help guide, prioritize, and organize desalination research by Reclamation and others” (5). The researcher came up with many new ways to improve the seawater desalination with the help of the Science and Technology program. One story is where researchers helped improve Central Arizona Project water supplies, which research determined that slow sand filtration (SSF) can reduce costs of new CAP water treatment plants by an amazing 75 percent. They thought that if they use a combination of SSF and reverse osmosis (RO) it can reduce desalting costs for surface waters by a breakthrough 20 percent” (5). The Science and Technology program also worked with the Phoenix Area Office “to treat tertiary treated waste water on the Tonto Indian Reservation. They demonstrated treating this source with micro filtration and reverse osmosis; the results showed that the town can safely inject the treated water into their drinking water aquifer” (5). Also, researchers developed a “Water Treatment Process Cost Estimation (WTCost) as a common reference point for comparing desalination costs” (5), which the accuracy were confirmed by the American Desalting Association and now the Reclamation managers can make “accurate decisions about advanced water treatment alternatives based on costs” (5). Lastly, the Science and Technology program showed that “chloramination can work for the Mni Wiconi Water Treatment Plant. As a result of this study, the design and construction of an ammonia injection system to provide chloramination disinfection is now underway at Mni Wiconi and shown to be reliable and effective for other similar applications” (5). These are some of the success stories in which desalination research became productive.

In conclusion, I know that the desalination process will have its effects and sometimes result to harmful consequences, but a “researcher’s job” is to find the problems, analyze and

experiment with the problems, and then fix them. For instance, when you stated in your article, “Top 10: Oppose Ocean Desalination,” about generators in the desalination process will create air pollution because “it’s running 24 hours daily” (1). This is a great example of acquiring a researcher to find the problems and fixing them. When scientists figure out that cars created air pollution and were considered to be one of the causes of global warming, did they stop making cars. No! They continued their research and created gas-electric hybrids motors for cars, which said to “decrease the pollution by 10 per cent” (O’Toole 97). Also, your article, “Top 10: Oppose Ocean Desalination,” states that new suggestions on treating desalination are offered daily, but with the lack of research scientists claim they do, these will not guarantee the improvement of the water shortage (1). This information cannot be an accurate, because this statement is more of an opinion. You all did not back your information up with reliable sources, and with all the information that I explained in this article, I figure that scientists are trying their best to find ways to improve the desalination problem; it’s just going to take them a little more time than you expect them to be finished. The process of “reverse osmosis,” the desalination process that most of the world uses, was just developed in the 1970’s (Pearce 22). It’s only been around nearly forty years, almost the same age of my mother, so this project is still fresh and needs more time to be adjusted. To me, this is just a start. The world is at the limit of freshwater and now is not the time to argue about a process that is trying to cure earth’s water shortage.

I think that you need to stop opposing ways of preventing desalination and figure out ways to improve it, because desalination maybe the only way to end our water shortage. I have not heard any other suggestions to help the water shortage problem except to conserve the little bit of water we have now or collect rainwater. With all the new technology that the world has developed, there should be no problem in finding this answer, but what you have to realize that it

takes time and patience. It took time for the invention of the light bulb to be created. It took time for the electricity to be run through homes. It took time for cell phones to be considered as one of the highest necessity that people desire. With those inventions being as successful as they are today, time and research was applied heavily. If you give desalination more time and critical research, researchers will figure out the kinks and make desalination a better process.



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