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6.3 Creating Death Valley Lake

Flooding Death Valley with sea water using canals connected to the Pacific can yield economic and environmental benefits, reduce the tax burdens on CA, NV, and other nearby states and produce a huge number of jobs. We consider here the questions: what are the *benefits*, and is it *feasible*?

Benefits

(1) Flooding Death Valley will create a water source (fresh water in the form of rain and desalination), thus restoring the water level in the Colorado River and associated lakes and providing adequate water to water-hungry cities in Nevada and environs. It will also provide more rain for farmers in the central US. Unlike Lake Mead and Lake Powell, this new sea will have an effectively infinite supply of water. The fact that Death Valley receives so much solar energy is the biggest plus, which is wasted today.

(2) It will create an "American Mediterranean" with all the associated real estate, recreational, and commercial potential, including large fishing and farming industries, and can significantly add to the economic revitalization of the US. It may be one of the biggest potential job creation mechanisms. Las Vegas will have a nearby source of fresh seafood and water, as well as recreational destinations.

(3) Death Valley Sea will have an area over 500 sq. mi, about the size of lakes Mead and Powell combined, and can be increased to 1,000 sq mi with dredging and even more by raising the water level above sea level. The Mediterranean is about 1 million sq. miles. As we shall see, the seawater needs to be pumped in, which means that the water level can be anything that is optimum for the project, probably higher than sea level by several thousand feet, in which case this sea will be enormous.

Feasibility

(1) Financing: The project can be financed by sale of properties along the canal; just the waterfront properties would be sufficient to pay for the work. Assuming \$1 Million per 500ft frontage, and a cost of about \$10 Million/mile, it would basically pay for itself, as there will be properties on both sides of the canal. This does not count the numerous properties nearby which would also become desirable real estate, especially for commercial purposes. The material dug out can be sold for landfill and generate even more income; it can probably be shipped to New Orleans or even all the way to Florida that can absorb any amount of land fill available, and be cost effective.

The economies around Las Vegas and environs will experience a surge with this availability of more waterfronts, commerce, and desalinated water and revival of the Colorado river and its lakes. Therefore, these states/communities can sell bonds to help finance the project and will generate future income to pay them off.

(2) Environmental: Some species may have to be relocated, but the number of unique species in Death Valley is small and do not have much significance in terms of affecting the eco-system. But perhaps a stronger argument is that, without this new supply of water, the Colorado will continue to dry out and the number of species threatened by loss of the Colorado water may be larger than that lost by creation of the Death Valley Sea. Desalination of sea water pumped into the lake can reduce the water demand on the Colorado.

(3) The canal will have to be about 200 miles long, probably originating close to the Santa

Monica Aquarium in California. Much of this 200 mi will be 3,000 ft above sea level. Digging a canal 3,000 ft deep will be quite an engineering/cost challenge. Therefore, this approach is not feasible.

One solution is to pump seawater into a series of lakes connected by canals. This approach may be cheaper than digging canals, since no digging is required along the length of the lake, if the terrain is properly chosen. To prevent the Death Valley Sea from eventually turning into a dead sea, a system may be needed to channel the high-salt water back into the Pacific, or a salt manufacturing plant can be built to consume the excess salt. In fact, ZDD (zero discharge desalination) is now a popular catch word in the desalination industry. Most calculations show that there is demand for the residues of desalination, so that the net cost of removing excess salt is either negligible or even a net profit.

(4) There is plenty of solar, wind, and geothermal energy available in this region to provide low cost energy for not only the construction of this project, but also for operating the industries and economies that will be associated with it. In fact, this region has the potential to become a net exporter of green energy, as long as enough water is available – which will be, upon completion of the project. In fact, it may be possible to combine desalination and energy generation in one plant because one byproduct of energy generation is heat.

The Santa Ana winds of the future might actually bring rain!

This approach may also work for the Dead Sea, only 50 miles from the Mediterranean.