

Desperate Plight of the Mesopotamian Marshes, southern Iraq

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I have been a member of the Society of Wetland Scientists since the mid-1980's, and have worked in the wetlands field professionally since that time. The most compelling, heart breaking and inspiring project I have ever worked on is the rehydration and now desiccation of the marshes of Iraq, and the adverse impacts on both the people of the marshes and the ecosystem. I became familiar with the ecological and cultural geography of the Mesopotamian Marshes in 2002, while serving as project manager for the Eden Again project (Eden Again Project 2003). Azzam and Suzie Alwash, founders of Eden Again/ Nature Iraq, inspired me with their dedication and commitment to the sustainable cultural and ecological restoration of the marshes (www.natureiraq.org).

In April 2009, I was invited by the Marine Science Center at the University of Basrah, Iraq to give the keynote address at the 3rd International Conference on the Rehabilitation of the Iraqi Southern Marshes. Iraqi scientists asked me to assist with translating a referendum to be signed by the 500 conference participants, which was an "appeal to governments of the neighboring countries and international societies to help by insuring and assigning a specific share of water for the Mesopotamian Marshes. For over thousands of years the cultures and ecosystem of the al Ahwar marshes have flourished and been sustained through life giving waters; we request enough water to restore and preserve the biodiversity and long lasting cultural heritage of this region". I am asking SWS scientists to go to my web site at www.csus.edu/indiv/s/stevensm to sign a petition in support with the Iraqi scientists.

The Mesopotamian Marshes of southern Iraq and Iran are the largest wetland ecosystem in the Middle East and Western Eurasia, historically covering over 12,000 km² of interconnected lakes, mudflats, and wetlands. In what the United Nations Environmental Program has declared "one of the world's greatest environmental disasters", over 90% of the marshlands were desiccated through the combined actions of upstream damming of the Tigris and Euphrates Rivers and downstream drainage projects undertaken by the Iraqi Baathist government.

With good water years since 2003, approximately 68% of marshes had been rejuvenated (an area approximately the size of the Everglades), and people had returned to their lives in the marshes. Draft comprehensive management plans for the Hawizeh Marsh Ramsar site and the Central Marsh proposed National Park have been prepared by the Government of Iraq. Unfortunately, the past two water years have resulted in severe drought and now the Mesopotamian Marshes are once again drying up. Less than 25% of the marshes remained hydrated in June 2009. The Twin Rivers water levels continue to drop; marshes recede; salinities increase; and the fish, reeds and water buffalo that embody the marshes die. After persecution and genocide under Saddam Hussein, the Ma'dan came home to the marshes hoping to regain their traditional lifestyle. With their marsh homeland disappearing into a salt-encrusted wasteland, they are once again a people dispossessed. The Ma'dan are now becoming urban refugee squatting on lands they do not have ownership or rights to, attempting to eke out an existence with their water buffalo. The fragility and vulnerability of the vast marsh ecosystem needs stronger action by the Iraqi government, to negotiate riparian water rights from upstream users in the Tigris-Euphrates watershed.

"The drought is indeed very serious," UN Environment Programme (UNEP) expert Hassan Partow told the BBC by email (Muir 2009). "The 2007-2008 season was one of the worst droughts on record, and snowfall in the catchments feeding the Tigris and Euphrates has also been limited. For the marshes, which are fed by a snow-driven hydrology, the spring snowmelt in March/April is critical... The signs don't look great." (See Figure 1). The proliferation of dams and irrigation schemes have disrupted natural flows and choked off much of the water supply. While Iraq has water-sharing agreements with neighboring countries, they are not effective, and there is a continuous loss of water

quality, water supply, and marshland ecosystem functions and cultural services. The Central and Hamar marshes are also being dehydrated due to upstream water diversions of the Tigris and Euphrates Rivers in Turkey and Syria. Iran's damming of the Karkheh River, which feeds directly into the Hor al Hawizeh marsh, is resulting in the desiccation and destruction of Iraq's most pristine remaining marsh.

It has been a tragic and bittersweet year for the Hor al Hawizeh marsh, recommended as a Peace Park between Iran and Iraq (Stevens 2007). In October 2007, the Ramsar Convention of Wetlands announced that the Hawizeh Marsh was designated a Wetland of International Significance, and Iraq's first Ramsar site. Simultaneously to the marshes being awarded international conservation status, Iran began diverting water from the Karkheh River and is completing construction of a militarized border dyke choking off water flows into Iraq.

It is especially sad that many the Ma'dan were returning to the marshes from exile in Iran; those who lived as environmental refugees throughout the 1990's returned to the marshes with their water buffalo. Even with the original rehydration of large marsh areas, much of the marsh ecosystem remained in poor condition. Less than 10% of the original marshes in Iraq remained as fully functioning wetlands by 2003 (Richardson et al 2005). Drought and water withdrawals are now again desiccating the marshes, and pollution of water, air, and land is extremely severe (Nature Iraq 2009). Iraq's environmental problems include the following: 1) water resource pollution (including groundwater); 2) ecosystem and biodiversity degradation; 3) waste and sanitation disposal; and 4) industrial and military pollutants and unexploded ordinance. Reduced flows have exacerbated water quality problems.

With low flows, salinity in the Shat al Arab has increased from salinity levels of 1 ppt to 4-5 ppt (data provided by Basra Marine Science Center, unpublished). Flows are significantly reduced. In 1977-1978 flows in the Shat al Arab ranged from 990-1,277 m³/sec; in 1993-1994 flows ranged from 550-1,100 m³/sec; in 2005-2006 flows were as low as 204 m³/sec; and in 2008-2009 flows reached a low of <100 m³/sec. Shad populations have declined 75%. Many other invertebrates are also declining, and the salty turbid water with warmer temperatures is adversely affecting fish production and biodiversity in the Gulf. The environment I witnessed in Basra had shattered buildings, and rivers so polluted with the algae (*Dunaliella* sp) that the water turned bright pink. Garbage was everywhere, and stray dogs snuffled through the garbage, well fed but in ill health. Heavy particulates from dust caused the air to appear sepia-toned, and visibility was similar to dense fog.

The marshes are a culturalized landscape, formed over thousands of years by agricultural and traditional management. Because the marsh ecosystem is adapted to human management, economic stability and the success of the restoration effort depends on integration of both the Marsh Arab and local Iraqi culture, sustainable ecosystem services, and the economic stability of a large portion of southern Iraq. Water buffalo illustrate this point, as they represent both an umbrella species and a cultural icon, important to the well-being of indigenous Ma'dan people. They are also a keystone species in the marsh ecosystem. "Water buffalo are widespread through the marshes in the south of Iraq. There are no houses in the marshes without a water buffalo. They are the main source of livelihood of people in the marshes, and are indicators of the quality of marsh life and restoration of the Iraqi marshes. I expect that the absence of water buffaloes will lead to the disappearance of people in the marshes" (Al Fartosi, pers comm., 2009).

Jassim Al-Asadi of Nature Iraq, says "There is drought, the water levels are getting lower and water quality has worsened; the marshes are continuously shrinking. This leads to great suffering, especially for the water buffalo breeders and fishermen. We must put pressure on decision makers to implement temporary solutions to provide marshes with water from the rivers. Please help us in writing and demanding water from Turkey and Iran, providing us with the water required to revive the marshes". About 10% of the marsh is shared with Iran (where it is called the al Azim marsh), where that area is being systematically drained.

The marshes are loved by the Iraqi people, and they are anxious to see the marshes restored. Over 500 Iraqi scientists and researchers have appealed to the Iraqi government, other governments in the Tigris-Euphrates watershed, and scientific organizations for help to ensure maintenance flows of water for the Iraqi Mesopotamian marshes. They ask for help to make the world aware of the continued degradation of the marshes and to help apply pressure on adjacent riparian countries to allow water flows into the system. This is a regional issue affecting all of the Middle Eastern countries in one way or another; basin wide planning or third party negotiation needs to occur for equitable water sharing. It seems apparent that without intervention from powerful outside countries to broker water rights in the Twin Rivers watershed, the marshes will die and the people will be dispossessed of their lifestyle, their cultural heritage, and the beloved marshes.

If you would like to sign the petition in support of Iraq efforts to restore water to the marshes, please go to my web site at www.cuss.edu/indiv/s/stevensm Please contact Michelle Stevens blog at iraqmarshrestoration.blogspot.com, my email mstevens@csus.edu. Thank you.

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