January 26, 2009

VIA MESSENGER AND ELECTRONIC MAIL

Dr. Richard Wright
Chairman
San Diego Regional Water Quality Control Board
9174 Sky Park Court, Suite 100
San Diego, CA. 92123-4340

Re: February 11, 2009 San Diego Regional Board Meeting, Item 6 - Poseidon Resources Corporation, Proposed Carlsbad Desalination Project (Order No. R9-2006-0065, NPDES No. CA0109223)

Dear Chairman Wright:

At the request of Poseidon Resources Corporation, I am writing to address Regional Board staff concerns regarding the biological data used to support Poseidon's Impingement and Entrainment Assessment. Enclosed is my expert opinion regarding this matter.

If you have any questions, please feel free to contact me.

Respectfully submitted,

Dr. Scott A. Jenkins, Ph.D.
Principal Engineer
Scripps Institution of Oceanography

Enclosure
Expert Opinion
Curriculum Vitae

Statement Addressing Regional Board Staff Concerns regarding the Biological Data Used to Support Poseidon's Impingement and Entrainment Assessment

Prepared by Scott A. Jenkins, Ph.D.

1/22/09

PURPOSE OF STATEMENT

Poseidon asked me to address certain questions raised by staff in staff's April 4, 2008 technical report. Specifically, staff state therein:

"This sampling set is likely to be skewed because it does not account for annual variability and the data were collected during a year that was atypical with regards to rainfall."

I examined these concerns prior to my testimony before the Board at the April 9, 2008 meeting. This statement memorializes that testimony, and elaborates upon it.

QUALIFICATIONS

I earned a B.S. in Chemistry at Yale University and a Ph. D. in Physical Oceanography at University of California, Scripps Institution of Oceanography. I am presently a Principal Engineer at the Scripps Institution of Oceanography where I have been employed since the age 16. I have 30 years experience in coastal process and have published research in the Journal of Geology that is specifically relevant to this statement. That research discovered a relation between climate cycles and rainfall, stream flow and sediment flux of small California rivers. In addition, I have provided consulting services in wetlands tidal hydraulics and restoration, beach erosion, as well as more generally hydrodynamics, aerodynamics and pollution dispersion in nearshore waters, harbors and estuaries (services include field measurements and numerical modeling). I have authored 23 peer reviewed publications, 47 conference proceedings and technical publications and 60 technical reports. A true and correct copy of my Curriculum Vitae is attached. The opinions expressed here are based on my education and experience including 29 years of studying tidal exchange and sediment transport in the Agua Hedionda Lagoon.

ROLE ON THIS PROJECT

I performed hydrodynamic dynamic modeling for Poseidon Resources of the brine dispersion from the Carlsbad Desalination Plant and tidal transport analysis of the effect the CDP might have on Agua Hediona Lagoon water quality, sand influx into the Lagoon and historic variations of water levels in the Lagoon over multi-decadal climate cycles.

SUMMARY STATEMENT

Staff are correct that the year in which the Impingement & Entrainment data were collected was an above-average year for rainfall in the relevant vicinity. I have examined the relevant characteristics of rainfall-runoff affecting Agua Hedionda Lagoon during the period of the field studies, June 2004-May 2005. I have concluded that the rainfall-runoff did not skew the results as staff were concerned. The rainfall and runoff during the relevant time period were neither intense enough nor persistent enough to significantly alter the predominately salt water environment of Agua Hedionda Lagoon.

DISCUSSION

The Regional Board need not share Regional Board staff's concern (expressed in their April 4, 2008 Technical Report) that the sampling set used for Poseidon's Impingement and Entrainment Assessment is likely to be skewed because the data were collected during a year that was atypical with regards to rainfall. As discussed more fully below, the 2004-2005 rainy season had an insignificant effect on the predominately salt water environment of Agua Hedionda Lagoon. Accordingly, the Regional Board can be confident that the sample set was not skewed by any non-representative hydrology.

1. At most, the heaviest rainfalls of 2004-2005 would lower salinity from 33.52 parts per thousand ("ppt") under dry conditions to 30.50 ppt during peak storm runoff; any such decrease in salinity would last only 2.6 days.

Agua Hedionda Lagoon is a salt water environment populated by salt water tolerant species. The watershed draining to Agua Hedionda Lagoon consists of 18,800 acres upstream from the lagoon, which drains to the lagoon principally via the Agua Hedionda Creek. (See Figure 1). The physical data show that this watershed is too small for runoff from it to significantly alter the predominantly salt water environment of Agua Hedionda Lagoon, even in a relatively wet year such as the period from June 2004 to June 2005 when the sampling for the entrainment study was done.

Tetra Tech (2007) prepared a comprehensive report on the Agua Hedionda Watershed water quality for the City of Vista, and Table 3 of that report provides flow rate data for Agua Hedionda Creek during 2005. Maximum daily flow rates in Agua Hedionda Creek during the 2005 rains was listed in Table 3 as 143.91 cfs, or the equivalent of 285.4 acre ft. Maximum daily rainfall totals in the Agua Hedionda watershed during 2005 were 1.45 in. (as measured by the NOAA/NCDC rain gage #03177 at Carlsbad Airport). Unfortunately the Tetra Tech (2007) provides no flow rate data for 2004, and there was one slightly heavier daily rainfall event on October 27, 2004 totaling 1.58 in. (See Figure 2). Flow rates reported in Tetra Tech (2007) for rainfall events of comparable magnitude in 2006 and 2007 indicate that the October 27, 2004 event could have produced flow rates in Agua Hedionda Creek no larger than 310 acre ft, and probably less since the October rains were the first to end the dry season, and antecedent soil moisture content was undoubtedly low, thereby diminishing runoff.

Now, consider how this maximum 285 acre ft to perhaps 310 acre ft of storm water runoff is diluted in the volume of sea water in the lagoon. On average, the lagoon

exchanges 1,700 acre ft. of seawater with the ocean each day through tidal flushing, and stores an average of 3,450 acre ft. of seawater, (Elwany, 2005; Jenkins and Wasyl, 2006.). Consequently, no more than 9% of the water in the lagoon was fresh water during the heaviest rains of 2004-2005; and, that would depress salinity from 33.52 ppt under dry conditions to no less than 30.75 ppt during peak storm runoff. Because of tidal flushing, this storm water would remain in the lagoon for only 2.6 days, based on the residence time of the lagoon water mass as determined by Elwany, (2005) and Jenkins and Wasyl, (2006) using two independent methods.

2. The physical data indicate that the 2005 rainy season did not alter the predominately salt water environment of Agua Hedionda Lagoon.

The NOAA/NCDC rain gage #03177 at Carlsbad Airport (cf. NWS, 2009) shows that only five other days besides the two peak rainfall events provided rainfall in excess of 1 in during the 2004-2005 entrainment sampling period. (See Figure 2). Consequently, the physical data indicates salinity in Agua Hedionda Lagoon was lowered by no more than three parts per thousand for a couple of days at a time, on no more than seven occasions during 2004-2005 entrainment sampling period. From this, I conclude that rainfall events during 2004-2005 were neither intense enough nor persistent enough to significantly alter the predominantly salt water environment of Agua Hedionda Lagoon.

REFERENCES

Elwany, M. H. S., R. E. Flick, M. White, and K. Goodell, 2005, "Agua Hedionda Lagoon Hydrodynamic Studies," prepared for Tenera Environmental, 39 pp. + appens.

Jenkins, S. A. and J. Wasyl, 2006, "Coastal Processes Effects of Reduced Intake Flows at Agua Hedionda Lagoon," submitted to Poseidon Resources, 34pp.

NWS, 2009, "National Weather Service Daily Climate Reports," http://www.wrh.noaa.gov/sgx/obs/rtp/carlsbad.html

Tetra Tech, 2007, "Agua Hedionda Watershed Water Quality Analysis and Recommendations Report", submitted to City of Vista, CA, 91 pp.

Daily Discharge (cfs) Summary Statistics at Agua Hedionda Creek and El Camino Real, from Tetra Tech (2007).

Year	Number measurements	Mean cfs	Median cfs	Minimum cfs	Maximum cfs	10th percentile	90th percentile
2005	306	7.08	3.54	0.91	143.91	1.65	13.8
2006	256	8.03	3.56	1.04	204.6	1.97	9.83
2007	120	11.2	3.62	0.07	314.21	0.1	23.67
Total	682	8.17	3.56	0.07	314.21	1.43	13.28

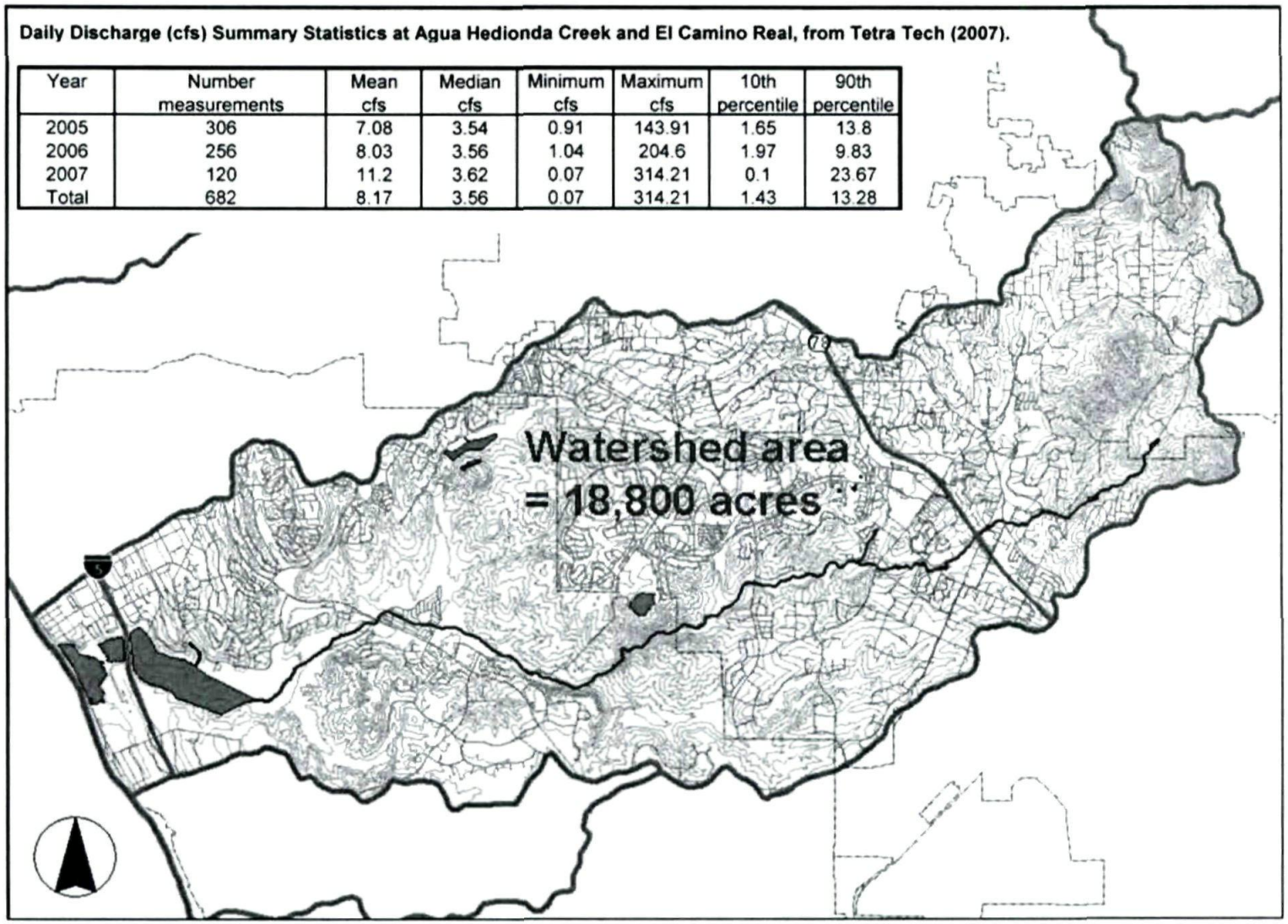

Figure 1. Flow Statistics of Agua Hedionda Creek Watershed, 2005-2007.

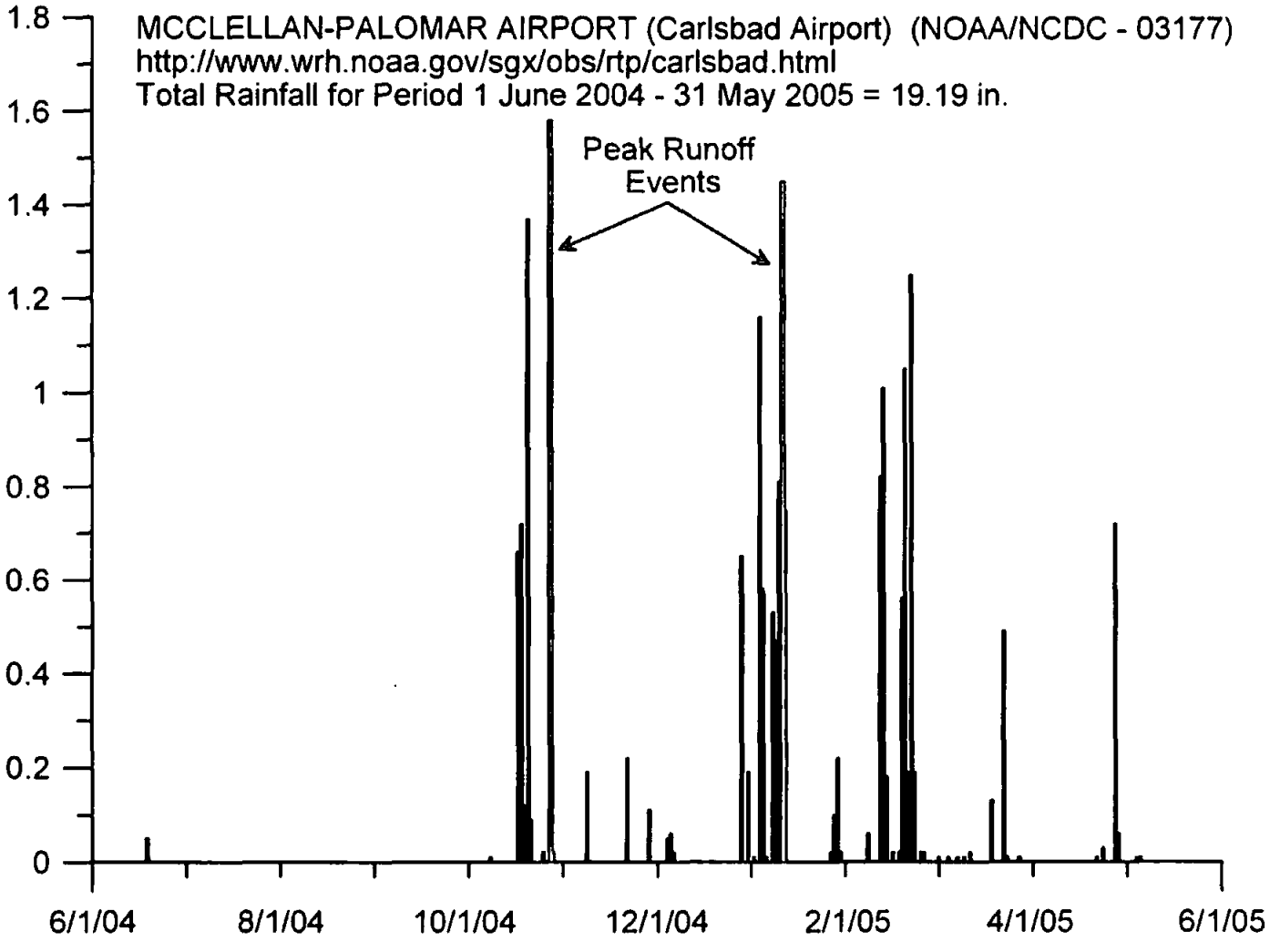

Figure 2. Rainfall: 1 June 2004 - 31 May 2005. NOAA/NCDC rain gauge #03177, Carlsbad Airport, CA.

VITA 2008

SCOTT ALAN JENKINS

Principal Engineer
Scripps Institution of Oceanography
Marine Physical Laboratory, 0701
University of California, San Diego
La Jolla, California 92093-0701
(858) 822-4075

Home/Consulting: 14765 Kalapana St., Poway, CA 92064

Education:

Yale University, B. S., Chemistry, 1972
University of California, Scripps Institution of Oceanography
Ph. D., Physical Oceanography, 1980

Academic Honors:

* Yale National Scholar, 1972
* Howard Douglas Moore Prize, Yale University, 1972
* Andrew Mellon Foundation Fellow, 1981-1983
* Inventor of the Year, 1985, San Diego Patent Law Association
* American Council of Consulting Engineers, GRAND AWARD, 1988, Best Special Project for Grays Harbor Jet Array, Co-recipient HNTB
* 1995 Lincoln Award

Security Clearance

Secret (DISCO-S0830 UPDATE: 18 December 1997)

Patents:

U. S. Patent No. 4,560,304, "Apparatus for impeding fine sediment deposition in harbors and navigation channels"
U. S. Patent No. 4,661,013, "Improved apparatus for impeding sediment deposition in marine berths"
U. S. Patent No. 4,957,392, "Method and apparatus for active prevention of sedimentation in harbors"
U. S. Patent No. 5,558,460, "Apparatus for enhancing wave height in ocean waves"

Employment History:

Employed at the Scripps Institution of Oceanography since age 16, beginning with summer jobs through high school and college. Since then the following job titles were held at Scripps:

- Laboratory Assistant, 1966-1972, (summers only)
- Research Assistant, 1972-1974

- Sea Grant Fellow, 1974-1976
- Staff Research Associate IV, 1978-1981
- Mellon Research Fellow, 1981-1983
- Assistant Research Oceanographer, 1983-1988
- Lecturer, 1987-1993
- Assistant Research Engineer, 1988-1993
- Senior Development Engineer, 1994-2004
- Principal Engineer 2004 to present

Consulting History:

Provided consulting services in coastal processes, hydrodynamics, aerodynamics and hydraulics of harbors and estuaries. Services include both field measurements and numerical modeling. A partial list of clients includes:

- City of Carpinteria, 1983
- Moffatt & Nichol Engineers, 1983
- U. S. Army Corps of Engineers, 1983
- Port of Grays Harbor, 1983-1990
- Port of Mobile, 1984-1989
- Exxon Production Research Co., 1984-1990
- City of Oceanside, 1983-1984
- Port of San Francisco, 1985-1986
- Port of Benecia, 1987-1989
- Nolte Engineering, 1987-1988
- San Diego Gas and Electric Co., 1987-present
- Sierra Club Legal Defense Fund, 1991-present
- Abam Engineers, Inc., 1992
- Southern California Edison, 1992-present
- MEC Analytical Systems, 1992-present
- Science Applications International Co., 1993-present
- Naval Research and Development Laboratory 1995 - present
- Irvine Company
- NRG Energy, Inc.
- Cabrillo Power Operations, Inc.
- Poseidon Resources, Inc.
- Headlands Reserve, LLC
- Los Angeles Department of Water and Power

Teaching:

(1982 to present), Co-instructor SIO 216A, "Physics of Sediment Transport" with Professor Douglas L. Inman.

(1982 to present), Co-instructor SIO 216B, "Coastal Processes" with Professor Douglas L. Inman.

(1984 to present), Member AOS, Applied Ocean Science curricular group.

Graduate advisor to Peter Mull, who graduated with an M. S. degree from Applied

Ocean Sciences curricular group of Scripps Institution of Oceanography in

January 1987.

Graduate advisor and thesis committee Co-Chairman to Saima Aijaz, who graduated with a Ph. D. degree from the AOS curricular group of Scripps Institution of Oceanography on March 16, 1993.

Undergraduate advisor to Kelly Boardman, who graduated with a B. S. degree from UCSD Urban Studies in June 1993.

(1994 to present), solo instructor MARS-20, "Introduction to Physical Oceanography," 3-hr. lecture and 3-hr. lab., Marine Science Department, University of San Diego.

Environmental and Professional Societies:

- National Research Council Committee on Sedimentation Control in Strategic Harbors and Waterways
- Scripps Institution of Oceanography Long Range Planning Committee
- American Geophysical Union
- San Diego Clean Water Program
- Surfrider Foundation, Environmental Director, 1990-1993
- Technical Advisory Committee, San Diego Regional Water Quality Control Board, 1995 to present

Television:

- ESPN, "Surfer Magazine Show," Host of "Surf-Science Segment," 1988-1992
- CBS, "Eye on the Earth," Interview with Dan Rather, 1992
- Discovery, "Hidden Treasures," Host, 1994
- BBC, "Walking on Water," Opening Host, 1994

Books or Chapters Submitted for Publication:

Inman, D. L. & **S. A. Jenkins,** in preparation, *Coastal Processes: Physics of Transport by Waves, Winds and Currents,* John Wiley and Sons, New York.

Peer Reviewed Publications:

Jenkins, S. A. & D. L. Inman, 1985, "On a submerged sphere in a viscous fluid excited by small-amplitude motions," *Jour. Fluid Mech.,* v. 157, p. 199–24.

Jenkins, S. A. & J. A. Bailard, 1989, "Anti-sedimentation system for harbors," *World Wide Shipping,* v. 52, n. 1, p. 70–75.

Heinz, R. A., J. A. Bailard & **S. A. Jenkins**, 1989, "Water jets fight silt," *Civil Engineering,* v. 59, n. 1, p. 54–58.

Inman, D. L. & **S. A. Jenkins**, 1989, "Wave overtopping at San Malo seawall," *Shore and Beach,* v. 57, n. 3, p. 19–25.

Jenkins, S. A. & J. Wasyl, 1990, "Resuspension of estuarial sediments by tethered wings," *Jour. Coastal Res.,* v. 6, n. 4, p. 961–980.

Jenkins, S. A. & J. Wasyl, 1990, "Optimization of glides for constant wind fields and course headings," *Jour. of Aircraft,* AIAA, v. 27, n. 7, p. 632–638.

Jenkins, S. A., L. Armi & J. Wasyl, 1992, "Glide optimization during cross-country wave flights," *Technical Soaring,* v. 16, n. 1, p. 3–16.

Jenkins, S. A., J. Wasyl & D. W. Skelly, 1992, "Tackling trapped sediments," *Civil Engineering,* v. 62, n. 2, p. 61–64.

Jenkins, S. A., S. Aijaz & J. Wasyl, 1992, "Transport of fine sediment by hydrostatic jets," *Coastal and Estuarine Studies, American Geophysical Union,* v. 42, p. 331–347.

Inman, D. L., M. H. S. Elwany & **S. A. Jenkins,** 1993, "Shoreline and bar-berm profiles on ocean beaches," *Jour. Geophys. Res.,* v. 98, n. C10, p. 18,181–18,199.

Aijaz, S. & **S. A. Jenkins,** 1993, "Dynamics of shearing in flocculating fine sediment suspension," *Makromol. Chem.*, v. 76, p. 89–93.

Aijaz, S. & **S. A. Jenkins,** 1994, "On the electrokinetics of the dynamic shear stress in fluid mud suspensions," *Jour. Geophys. Res.*, v. 99, n. C6, p. 12,697–12,706.

Inman, D. L. & **S. A. Jenkins**, 1999, "Climate change and the episodicity of sediment flux of small California rivers," *Jour. Geology,* v. 107, p. 251–270. http://repositories.cdlib.org/sio/cmg/2/

Jenkins, S. A. & D. L. Inman, 1999, "Sand transport mechanics for equilibrium tidal inlets," *Shore & Beach* (Magoon Volume, Jan 99), v. 67, n. 1, p. 53–58.

Inman, D. L. & **S. A. Jenkins**, 2004, "Climate patterns in the coastal zone," p. 301–305 in M. Schwartz, ed., *Encyclopedia of Coastal Science*, Kluwer Academic Publishers, Dordrecht, Netherlands. http://repositories.cdlib.org/sio/cmg/3/

Inman, D. L. & **S. A. Jenkins**, 2004, "Energy and sediment budgets of the global coastal zone," p. 506–514 in M. Schwartz, ed., *Encyclopedia of Coastal Science*, Kluwer Academic Publishers, Dordrecht, Netherlands. http://repositories.cdlib.org/sio/cmg/5/

Inman, D. L. & **S. A. Jenkins**, 2004, "Accretion and erosion waves on beaches," p. 1–4 in M. Schwartz, ed., *Encyclopedia of Coastal Science,* Kluwer Academic Publishers, Dordrecht, Netherlands. http://repositories.cdlib.org/sio/cmg/6/

Inman, D. L. & **S. A. Jenkins**, 2004, "Scour and burial of objects in shallow water," p. 1020–1026 in M. Schwartz, ed., *Encyclopedia of Coastal Science*, Kluwer Academic Publishers, Dordrecht, Netherlands.

Inman, D. L., **S. A. Jenkins** & P. M. Masters, in press 2003, "Modeling platforms, terraces and coastal evolution," p. 802–806 in M. Schwartz, ed., *Encyclopedia of Coastal Science*, Kluwer Academic Publishers, Dordrecht, Netherlands. http://repositories.cdlib.org/sio/cmg/7/

Grant, S.B., J.H. Kim, B.H.Jones, **S.A. Jenkins**, J.Wasyl, and C.Cudaback, 2005, "Surf zone entrainment, along-shore transport, and human health implications of pollution from tidal inlets," *Jour. Geophys. Res.,* v.110, C10025, doi:10.1029/2004JC002401, 20 pp.

Jenkins, S. A. and D. L. Inman, 2006, "Thermodynamic solutions for equilibrium beach profiles", *Jour. Geophys. Res.,* v.3, C02003, doi:10.1029, 21pp.

Jenkins, S. A., Inman, D.L., Michael D. Richardson, M.D., Thomas F. Wever, T.F. and J. Wasyl, 2007, "Scour and burial mechanics of objects in the nearshore", *IEEE Jour.Oc.Eng*, vol.32, no. 1, pp 78-90.

Jenkins, S. A., D'Spain, G.L., Rover, G. and A. Thode in press, "Hydrodynamics and acoustics of a flying wing underwater glider in free flight", *IEEE* Jour.Oc.Eng, 15 pp.

Conference Proceedings and Technical Publications:

Jenkins, S. A. & D. L. Inman, 1976, "Forces on a sphere under linear progressive waves," *Proc. 15th Coastal Eng. Conf.,* Amer. Soc. Civil Eng., v. 1, p. 2413–2418.

Jenkins, S. A. & D. L. Inman, 1977, "Tilting spar directional wave sensor," *Proc. Nat. Sed. Trans. Study Workshop* at Scripps Institution of Oceanography, Institute Marine Resources No. 78-102 and Sea Grant Publ. No. 62, p. 143–149.

Jenkins, S. A., 1980, "Directional wave and current data from a weakly buoyant tilting spar," *Proc. 17th Int. Conf. Coastal Eng.,* Amer. Soc. Civil Eng., v. 1, p. 32–33.

Jenkins, S. A., D. L. Inman & J. A. Bailard, 1980, "Opening and maintaining tidal lagoons and estuaries," *Proc. 17th Int. Coastal Eng. Conf.,* Amer. Soc. Civil Eng., v. 2, p. 1528–1547.

Jenkins, S. A. 1980, "Sedimentation control experiments at Mare Island Naval shipyard," *Proc. Dredging Sedimentation Control,* P. Shelly, ed., Pub. EG&G, Washington, p. (4-1) – (11-6).

Jenkins, S. A. 1980, "Alternatives for sedimentation control at the Pier 10-11-12 complex, Norfolk, Naval Station," *Proc. Dredging Sedimentation Control,* P. Shelly, ed., Pub. EG&G, Washington, p. (11-1) – (11-6).

Bailard, J. A. & **S. A. Jenkins,** 1983, "Experimental sand bypass system at Oceanside Harbor, Phase 1a fluidizer and eductor crater system design report," *U. S. Army Corps of Engineers,* No. L-203440, 75 p.

Jenkins, S. A. 1983, "Notes on the L/Dmax of soaring sea birds," *Soaring,* v. 47, n. 8, p. 27–28.

Jenkins, S. A., 1983, "Vortex foils," *Popular Science,* v. 162, September, p. 66.

Inman, D. L. & **S. A. Jenkins,** 1984, "The Nile littoral cell and man's impact on the coastal zone of the southeastern Mediterranean," *Proc. 19th Coastal Eng. Conf.*, Amer. Soc. Civil Eng., Ch. 109, p. 1600–1617.

Bailard, J. A. & **S. A. Jenkins,** 1984, "Systems for reducing sedimentation in berthing facilities," *Proc. Dredging '84,* Amer. Soc. Civil Eng., v. 1, p. 11–320.

Bailard, J. A. & **S. A. Jenkins,** 1985, "Evaluation of two concepts for reducing sedimentation at Mayport Naval Station," Naval Facilities Engineering Command TN #N-1725, 47 pp.

Inman, D. L. & **S. A. Jenkins,** 1985, "Erosion and accretion waves from Oceanside Harbor," p. 591-593, in *Oceans '85: Ocean Engineering and the Environment,* IEEE and Marine Technology Society, v. 1, 674 pp.

Jenkins, S. A. 1985, "Secondary flows in thermal waves," *Proc. of IAMAP/IAPSO Joint Assembly*, Honolulu, Hawaii, Int. Union of Geodesy & Geophysics,Washington, p. 96–97.

Inman, D. L. & **S. A. Jenkins,** 1986, "Budget of sediments for estuarine harbors," *Proc. Symp. on Sed. Control.,* National Research Council, Marine Board, July 7-10, Washington, DC, 8 pp.

Jenkins, S. A., 1986, "Existing facility modification," *Proc. Symp. on Sed. Control,* National Research Council, July 7-10, Washington, D. C., 8 pp.

Jenkins, S. A., 1986, "Passive remedial measures for controlling sedimentation in channels and parallel berths," *Proc. Symp. on Sed. Control,* National Research Council, Marine Board, July 7-10, Washington, D. C., 36 pp.

Jenkins, S. A., 1986, "Scour and erosion of fine sediments due to horseshoe vortices," *EOS,* v. 67, n. 44, p. 1020.

Jenkins, S. A., 1987, "Downbursts," *Soaring*, v. 51, n. 7, p. 37–41.

Bailard, J. A. & **S. A. Jenkins**, 1987, "An evaluation of two concepts for reducing sedimentation at Mayport Turning Basin, Florida," *Proc. Sediments '87,* ASCE, New York, v. 2, p. 100–116.

Jenkins, S. A., D. L. Inman & D. W. Skelly, 1989, "The impact of dam building on the California coastal zone," *Waterfront Age,* v. 5, n. 1, p. 12–16.

Wasyl, J., **S. A. Jenkins** & D. W. Skelly, 1991, "Sediment bypassing around dams - a potential beach erosion control mechanism," *The California Coastal Zone Experience,* ed. Domurat, G. W., ASCE, p. 251–265.

Jenkins, S. A., L. Armi & J. Wasyl, 1991, "Glide optimization during cross-country wave flights," *Proc. XXII OSTIV Congress,* DFVLR, D-8031 Wessling, Germany, p. 16.2–16.3.

Jenkins, S. A., & J. Wasyl, 1991, "Research and development of sedimentation control for marinas and harbors," *Proc. 1991 National Applied Marina Research Conference,* International Marina Institute, Wickford, RI, 20 pp.

Aijaz, S. & **S. A. Jenkins,** 1993, "Fluid-sediment interactions and dynamic shear stress in fine sediment suspension," *Powders & Grains '93,* Thornton (ed.), Balkema, Rotterdam, ISBN 90 5410 323, p. 437–438.

Aijaz, S. & **S. A. Jenkins,** 1993, "Fluid-sediment interactions and dynamic shear stress in fine sediment suspensions," *Proc. of the Second Int. Conf. on Micromechanics of Granular Media*, Birmingham, UK, Balkema, Rotterdam, p. 413–419.

Hyman, M., J. Rohr, J. Schoonmaker, T. Ratcliffe, B. Chadwick, K. Richter, **S. Jenkins,** & J. Wasyl, 1995, "Mixing in the wake of an aircraft carrier," *Proc. Oceans*, 95, v. 1, p. 221–237.

Inman, D. L., **S. A. Jenkins**, and M. H. S. Elwany, 1996, "Wave climate cycles and coastal engineering practice," *Coastal Eng., 1996, Proc. 25th Int. Conf., (Orlando)*, Amer. Soc. Civil Eng., Vol. 1, Ch. 25, p. 314–327.

Inman, D. L. & **S. A. Jenkins**, 1997, "Changing wave climate and littoral drift along the California coast," p. 538-549 in O. T. Magoon et al., eds., *Californiaand the World Ocean '97*, ASCE, Reston, VA, 1756 pp.

Inman, D. L. & **S. A. Jenkins**, 1997, "Climate change and the sediment flux of small California rivers," p. 60–63 in R. E. Flick & C. Willis, eds., *Coastal Impacts of an El Niño Winter* (Proceedings of a Workshop), University of California, San Diego, Scripps Institution of Oceanography, SIO Reference Series No. 97-10, 63 pp.

Jenkins, S. A. & D. L. Inman, 1998, "A coastal monitor/forecast system," p. 491–502 in O. T. Magoon et al., eds., *California and the World Ocean '97,* Amer. Soc. Civil Eng., Reston, VA, 1756 pp. (v. 16; A-189).

Jenkins, S. A. & D. L. Inman, 1998, "Analytic solutions for equilibrium profiles on ocean beaches," *EOS, Amer. Geophys. Union, Trans.*, v. 79, n. 45, p. F446.

Inman, D. L. & **S. A. Jenkins**, 1998, "Erosion cycle of coastal drainage basins due to climate change," *EOS, Amer. Geophys. Union, Trans.*, v. 79, n. 45, p. F371.

Inman, D. L., **S. A. Jenkins** & J. Wasyl, 1998, "Database for streamflow and sediment flux of California rivers," *University of California, San Diego*, Scripps Institution of Oceanography, SIO Reference Series 98-9, 13 pp. + 3 tbls. + 19 figs. + 4 appens.(v. 16; B-157) http://repositories.cdlib.org/sio/cmg/1/

Jenkins, S. A. & D. L. Inman, 1999, "El Niño and global warming effects on tidal inundation of a southern California wetland restoration," p. 52 in *Southern California Academy of Sciences,* Los Angeles, Abstracts Volume, Annual Meeting, April 30-May 1, 1999, Dominguez Hills, 80 pp.

Inman, D. L. & **S. A. Jenkins**, 2001, "Processes on narrow beaches with sandy foreshores and cobble berms," *Restoring the Beach: Science, Policy and Funding*, CSBPA & CalCoast, 8-10 November 2001, San Diego, CA, 2 pp.

Jenkins, S. A. & D. L. Inman, 2001, "Beach recovery following river mouth Scour at Del Mar, CA," *Restoring the Beach: Science, Policy and Funding*, CSBPA & CalCoast, 8-10 November 2001, San Diego, CA, 2 pp.

Jenkins, S. A., D. L. Inman & P. M. Masters, 2002, "Coastal watershed model for ENSO-driven discharges of sediment and sorbed chemicals," *Solutions to Coastal Disasters Conference*, ASCE San Diego, 24-27 February 2002.

Inman, D. L., P. M. Masters & **S. A. Jenkins**, 2002, "Facing the Coastal Challenge: Modeling Coastal Erosion in Southern California," in O. T. Magoon et al., eds., *California and the World Ocean '02*, Amer. Society of Civil Engin., Reston, VA, 9 pp. http://repositories.cdlib.org/sio/cmg/12/

Inman, D. L. & **S. A. Jenkins**, 2002, "Scour and burial of bottom mines, a primer for fleet use," *University of California, San Diego*, Scripps Institution of Oceanography, SIO Reference Series 02-8, text, fig. & appen., 100 pp. http://repositories.cdlib.org/sio/reference/02-8/

Jenkins, S.A., and D.L. Inman, 2002, "Model for mine scour and burial," *SIO Reference Series* No. 02-2, 42 pp.

Inman, D. L., **S. A. Jenkins** & P. M. Masters, 2003, "Modeling the future of sand beaches," *Oceans 2003 Conference, San Diego, Marine Technology Society,* Session 77, p. 1485–6. (Softbound Book ISBN: 0-933957-30-0, DVD ISBN: 0-933957-32-7, Holland Enterprises, Escondido, CA).

Jenkins, S. A. & D. L. Inman, 2003, "Process model for terrace formation and shoreline evolution," *Oceans 2003 Conference, San Diego, Marine Technology Society*, Session 77, p. 1483–4. (Softbound Book ISBN: 0-933957-30-0, DVD ISBN: 0-933957-32-7, Holland Enterprises, Escondido, CA).

Jenkins, S. A., Humphreys, D.E., Sherman, J., Osse, J., Jones, C., Leonard, N., Graver, J., and R. Bachmayer, 2003, "Alternatives for Enhancement of Transport Economy in Underwater Gliders," *Oceans 2003 Marine Technology and Ocean Science Conference*, San Diego, Paper 987.

Jenkins, S. A., Humphreys, D.E., Sherman, J., Osse, J., Jones, C., Leonard, N., Graver, J., and R. Bachmayer, 2003, "Underwater Glider Systen Study," Scripps Institution of Oceanography Tech. Rpt. No. 57 , 242 pp., 2003 in http://repositories.cdlib.org/sio/techreport/53/

Jenkins, S. A. and J. Wasyl, 2005, "Oceanographic considerations for desalination plants in Southern California coastal waters," Scripps Institution of Oceanography Tech. Rpt. No. 54, 109 pp + appendices. http://repositories.cdlib.org/sio/techreport/54/

Jenkins, S. A. and J. Wasyl, 2005, "Coastal evolution model," Scripps Institution of Oceanography Tech. Rpt. No. 58, 179 pp + appendices. http://repositories.cdlib.org/sio/techreport/58/

Technical Reports:

Jenkins, S. A., D. L. Inman & W. G. Van Dorn, 1981, "Evaluation of sediment management procedures," *SIO Reference Series* No. 81-22, 212 pp.

Inman, D. L. & **S. A. Jenkins**, 1983, "Oceanographic report for Oceanside Beach facilities," City of Oceanside Beach facilities, City of Oceanside, 206 pp.

Jenkins, S. A., & D. W. Skelly, 1983, "Jet array site suitability study at Charleston Naval Station," *SIO Reference Series* No. 83-20, 146 pp.

Jenkins, S. A., D. L. Inman & D. W. Skelly, 1983, "The action of sea level inequalities upon sediment influx events at Mayport Naval Station," *SIO Reference Series* No. 83-19, 57 pp.

Jenkins, S. A., & D. W. Skelly, 1983, "Port of Grays Harbor jet array site suitability study," *SIO Reference Series* No. 83-19, 47 pp.

Inman, D. L.& **S. A. Jenkins**, 1984, "The Nile littoral cell and man's impact on the coastal zone of the south-eastern Mediterranean," *SIO Reference Series* No. 84-31, 43 pp.

Jenkins, S. A., 1985, "Alternatives for maintaining tidal circulation in the Batiquitos Lagoon, California," *SIO Reference Series* No. 85-16, 51 pp.

Jenkins, S. A., 1985, "Clandestine methods for the determination of beach trafficability," *SIO Reference Series* No. 85-27, 62 pp.

Inman, D. L., **S. A. Jenkins**, D. M. Hicks & H. K. Kim, 1986, "Oscillatory bursting over beds of fine sand," *SIO Reference Series* No. 86-13, 50 pp.

Jenkins, S. A. & D. W. Skelly, 1986, "Balanced equilibrium tidal plan for Batiquitos Lagoon," Prepared for Nolte Engineering, 59 pp.

Jenkins, S. A., 1987, "Hydrodynamics of artificial seaweed," *SIO Reference*

Series No. 87-16, 66 pp.

Jenkins, S. A., D. W. Skelly & J. Wasyl, 1988, "MARFAC sedimentation control: site suitability study and conceptual system design," *SIO Reference Series* No. 88-12, 28 pp.

Jenkins, S. A., J. A. Nichols & D. W. Skelly, 1989, "Coupled physical-biological dispersion model for the fate of suspended solids in sewage discharged into the ocean," *SIO Reference Series* No. 89-3, 53 pp.

Jenkins, S. A. & D. W. Skelly, 1989, "An evaluation of the coastal data base pertaining to sea water diversions at Encina power plant," *SIO Reference Series* No. 89-4, 52 pp.

Jenkins, S. A., D. W. Skelly & J. Wasyl, 1989, "Dispersion and momentum flux study of the cooling water outfall at Agua Hedionda," *SIO Reference Series* No. 89-17, 36 pp.

Jenkins, S. A., 1990, "Test and evaluation plan for the gliding submarine tactic," prepared for COMSUBDEVRON 12, Groton, CT, 14 pp.

Jenkins, S. A. & I. Flynn, 1991, "White paper - a procedure for remotely determining suitability of amphibious landing beaches," prepared for Amphibious Liaison, Naval Ocean Systems Center, Pt. Loma, CA, 22 pp.

Aijaz, S., **S. A. Jenkins** & D. L. Inman, 1993, "Dynamic shear stress in fluid-mud suspension," *SIO Reference Series* No. 92-23, 106 pp.

Jenkins, S. A. & J. Wasyl, 1993, "Hydraulics and coastal processes modeling for three wetland restoration alternatives at San Dieguito Lagoon, CA," submitted to Southern California Edison Co., 173 pp.

Jenkins, S. A. and J. Wasyl, 1994, "Numerical modeling of tidal hydraulics and inlet closures at Agua Hedionda Lagoon," submitted to San Diego Gas and Electric Co., 91 pp.

Jenkins, S. A. and J. Wasyl, 1994, "Time stepped suspended transport model for the dispersion of optical particles in coastal waters," submitted to Office of Naval Research, Code 1153, 84 pp.

Hammond, R. R., **S. A. Jenkins**, J. S. Cleveland, J. C. Talcott, A. L. Heath, J. Wasyl, S. G. Goosby, K. F. Schmitt & L. A. Leven, 1995, "Coastal water clarity modeling," SAIC, Technical Report 01-1349-03-4841-000, 491 pp.

Jenkins, S. A. & J. Wasyl, 1996, "Wave transport corrections to the inlet closure problem of the San Dieguito Lagoon, CA," submitted to Southern California Edison Company, 101 pp.

Jenkins, S. A. and J. Wasyl, 1996, "Far field dispersion of paper particulates from surface vessel discharges in marginal seas," submitted to Naval Research and Development Lab., Code 574, 210 pp.

Jenkins, S. A. and J. Wasyl, 1996, "Analysis of inlet closure risks at Agua Hedionda Lagoon, CA and potential remedial measures," submitted to San Diego Gas and Electric, Co., 316 pp.

Jenkins, S. A. and J. Wasyl, 1996, "Hydrodynamic transport study of constituent net additions from the SDG&E South Bay Power Plant," submitted to San Diego Gas and Electric Co., 25 pp.

Jenkins, S. A. & D. L. Inman, 1996, "A coastal monitor/forecast system," *SIO Reference Series* No. 96-12, 20 pp.

Inman, D. L. & **S. A. Jenkins,** 1996, "A chronology of ground mine studies and scour modeling in the vicinity of La Jolla," *SIO Reference Series* No. 96-13, 26 pp.

Inman, D. L., **S. A. Jenkins** & J. Wasyl, 1998, "Database for streamflow and sediment flux of California rivers," University of California, San Diego, Scripps Institution of Oceanography, *SIO Reference Series* No. 98-9, 13 pp. + 3 tbls. + 18 figs. + 4 appens.

Jenkins, S. A. and J. Wasyl, 1998, "Analysis of coastal processes effects due to the San Dieguito Lagoon restoration project final report: July 23, 1998," submitted to Southern California Edison Company, 333 pp, + 126 figs., + 11 appens.

Jenkins, S. A. and J. Wasyl, 1998, "Coastal processes analysis of maintenance dredging requirements for Agua Hedionda Lagoon," submitted to San Diego Gas and Electric Company, 176 pp. + 60 figs. + 8 appens.

Jenkins, S. A. & J. Wasyl, 1999, "Performance and optimization of the *Mixed Habitat Plan** in long-term inundation simulations, (*a restoration concept for San Dieguito Lagoon, CA)," submitted to Southern California Edison Company, 62 pp. + 36 figs. + 8 appens.

Jenkins, S. A. & J. Wasyl, 1999, "Long-term inundation simulations of alternative restoration plans* for the San Dieguito Lagoon, CA, (*RESTORATION CONCEPTS INCLUDING: *The Maximum Tidal Basin Plan, Maximum Salt Marsh Plan, Hybrid Alternative and the Reduced Berm Alternative*)," submitted to Southern California Edison Company, 57 pp.

Jenkins, S. A. & J. Wasyl, 1999, "Long-term tidal inundation frequency analysis for credit evaluation of the San Dieguito Lagoon restoration alternatives," submitted to Southern California Edison Company, 10 pp., + 3 appens.

Jenkins, S. A. & J. Wasyl, 1999, "Hydroperiod functions for habitat mapping of restoration alternatives for San Dieguito Lagoon," submitted to Southern California Edison Company, 15 pp.

Jenkins, S. A., M. Josselyn & J. Wasyl, 1999, "Hydroperiod and residence time functions for habitat mapping of restoration alternatives for San Dieguito Lagoon," submitted to Southern California Edison Company, 30 pp., + appen.

Jenkins, S. A. and J. Wasyl, 1999, "Coastal currents in the neighborhood of Agua Hedionda Lagoon during the migration period of the Tidewater Goby," submitted to Cabrillo Power 1LLC, 34 pp., + 2 appens.

Inman, D. L., **S. A. Jenkins** & P. M. Masters, 2000, "Budget of sediment and fate of DDT at the ocean edge of the Southern California Bight," a technical report dated 30 March 2000, prepared for Latham and Watkins, Costa Mesa, CA 92626, 57 pp., 9 tables, 18 figs.

Jenkins, S. A., 2000, "Resuspension of bottom sediments in San Diego Bay due to propeller wash and circulation pump discharge from CVN 75 class aircraft carriers," submitted to SPAWAR System Center, San Diego, 24 pp., + appen.

Jenkins, S. A. and D. L. Inman, 2000, "Numerical Modeling of Station Keeping for the VSW/MCM Neutralization Marker," submitted to SPAWAR, Code

D352, San Diego, CA 92152-5001, 21 pp.

Jenkins, S. A. and J. Wasyl, 2001, "Hydrodynamic modeling of fresh water ingestion and concentrated seawater dilution for the Long Beach Ocean Desalination Project at Alamitos Power Station," submitted to Poseidon Resources, 89 pp.

Jenkins, S. A. and J. Wasyl, 2001, "Hydrodynamic modeling of source water make-up and concentrated seawater dilution for the ocean desalination project at the AES Huntington Beach Power Station, Part I: Analysis of issues to receiving water," submitted to Poseidon Resources, revised 20 December 2001, 111 pp.

Jenkins, S. A. and J. Wasyl, 2001, "Hydrodynamic modeling of dispersion and dilution of concentrated seawater produced by the Ocean Desalination Project at the Encina Power Plant, Carlsbad, CA," submitted to Poseidon Resources, 186 pp.

Jenkins, S. A. and J. Wasyl, 2002, "Hydrodynamic modeling of source water make-up and concentrated seawater dilution for the ocean desalination project at the AES Huntington Beach Power Station, Part II: Analysis of issues to source water," submitted to Poseidon Resources, revised 13 January 2002, 78 pp.

Jenkins, S. A. and J. Wasyl, 2002, "Hydrodynamic modeling of source water make-up and concentrated seawater dilution for the ocean desalination project at the AES Huntington Beach Power Station, Part III: Analysis of salinity profiles and exposure time," submitted to Poseidon Resources, 26 pp.

Jenkins, S. A. and J. Wasyl, 2004, "Analysis of inlet dynamics and beach interactions due to the San Dieguito Lagoon Restoration Project", submitted to Southern California Edison Company, 102 pp + appendices

Jenkins, S. A., and Houston Jones, 2004, "Flying Wing Underwater Glider Free Flight Prototype," submitted to Office of Naval Research, Code 321 OE, 15 pp.

Jenkins, S. A. and J. Wasyl, 2004, "Model for Prediction of UXO Exhumation, Transport and Subsequent Burial," submitted to Sound and Sea Technology and Naval Facilities Engineering Service Center, Ocean Engineering Division, OP51, Port Hueneme CA, 101 pp.

Jenkins, S. A. and J. Wasyl, 2005, "Brine Dilution Study for the Los Angeles Department of Water and Power Desalination Project at Scattergood Generating Station," submitted to Los Angeles Department of Water and Power, 109 pp + appendices.

Jenkins, S. A. and J. Wasyl, 2005, "Analysis of coastal processes effects due to the Tijuana Estuary Restoration Project Final Report, " submitted to Tierra Environmental Services, 130 pp

Jenkins, S. A. and J. Wasyl, 2005, "Model for prediction and updates for UXO transport during MMFT 1 & 2, Ocean Shores, WA," submitted to Sound and Sea Technology and Naval Facilities Engineering Service Center, Ocean Engineering Division, OP51, Port Hueneme CA, 172 pp.

Jenkins, S. A. and J. Wasyl, 2006, "Coastal Processes Effects of Reduced Intake Flows at Agua Hedionda Lagoon," submitted to Poseidon Resources, 34pp.

Jenkins, S. A. and J. Wasyl, 2006, "Hydrodynamic Modeling of Shoreline Discharges of Laboratory Seawater and Storm Water at Scripps Beach, CA," submitted to UCSD Facilities Design and Construction, 266 pp.

Jenkins, S. A. and J. Wasyl, 2006, "VORTEX LATTICE Scour/Burial Model Codes," submitted to the Office of Naval Research, Code 321 CG, 84 pp + appendices.

Jenkins, S. A. and J. Wasyl, 2006, "UUV-N Environmental Characterization," submitted to the Office of Naval Research, Code 321 CG, 85 pp.

Jenkins, S. A. and J. Wasyl, 2007, "Station Keeping and Burial Analysis of XN Vehicle at Scripps Pier," submitted to Vehicle Control Technologies, Inc, Reston VA, and Naval Surface Warfare Center, Code HS14, Panama City, FL, 17 August 2007, 56 pp.

Jenkins, S. A. and J. Wasyl, 2007, "Model for Prediction of UXO Transport and Burial during Field Tests at PMRF, Kauai, HI," submitted to Sound and Sea Technology and Naval Facilities Engineering Service Center, Ocean Engineering Division, OP51, Port Hueneme CA, 48 pp.

Jenkins, S. A. and J. Wasyl, 2008, "Model for Prediction of UXO Transport and Burial during Field Tests at Field Research Facility (FRF), Duck, NC," submitted to Sound and Sea Technology and Naval Facilities Engineering Service Center, Ocean Engineering Division, OP51, Port Hueneme CA, 58 pp.

Jenkins, S. A. and J. Wasyl, 2008, "Dilution Analysis for Source and Receiving Water for the Santa Cruz Seawater Desalination Project", submitted to Archibald Consulting and the City of Santa Cruz Public Works Department, 104 pp.