From:	Axelrad, Don
To:	cpollman@aqualuxlucis.org; rharris6@cogeco.ca; gilmourc@si.edu; borem@usgs.gov; Atkeson, Thomas; ted.lange@MyFWC.com; mgabriel@sfwmd.gov
Subject:	Soil Total Mercury Concentrations across the Greater Everglades
Date:	Wednesday, May 06, 2009 11:08:49 AM
Attachments:	Cohen 2009 THg in soils across the Everglades.pdf

---

This (attached) is a useful paper - courtesy of Sue Newman via Dan Scheidt.

Don

Elevated Hg concentrations in the Everglades pose ecological and human health risks. We mapped soil total Hg concentrations per mass (THgM) and area (THgA) across the Everglades,and investigated relationships with soil properties (total P [TP] and organic matter content),community type, and hydrologic compartmentalization. Samples (n = 600) from surface soils (0–10 cm) were selected from a population of 1405 sites spanning the Everglades. Overall, 168 sites had THgM levels >0.2 mg kg−1; interpolation suggests that 23% of the Greater Everglades exceeds this threshold. Hot spots (>0.4 mg kg−1) were observed in eastern Water Conservation Area (WCA) 1 and west-central WCA3A; parts of WCA2A, WCA3AN, and WCA3B were locally high. Despite signifi cant global differences in THgM among plant communities, differences evaluated using paired proximate sites were not signifi cant, suggesting that large spatial scale depositional gradients govern ecosystem storage. Median THgA was 1.89 mg m−2 (range 0.07–12.05 mg m−2), representing approximately 100 yr of atmospheric deposition at contemporary rates (19 µg m−2 yr−1). Correlation between TP and THgM was positive in unimpacted areas (TP < 500 mg kg−1, r = 0.69), but negative in impacted areas (TP > 500 mg kg−1, r = -0.47), probably due to accelerated peat accretion rates in P-enriched areas. Moreover, while reverse correlation with distance from a canal for THgM (0.70) and TP (−0.77) supports Hg enrichment via atmospheric deposition, THgM hotspots in WCA3AS, WCA1, and the Holeyland and Rotenberger tracts are suggestive of local enrichment mechanisms. Finally, despite dramatic regional emissions declines, the estimated mass of Hg in surface soils across the Everglades has increased 20% (11,000 vs. 13,100 kg) since 1996; while the statistical significance of this change is unknown, it provides a useful benchmark for future surveys.

==========

-----Original Message-----
From: Axelrad, Don
Sent: Wednesday, May 06, 2009 10:53 AM
To: 'Scheidt.Dan@epamail.epa.gov'
Subject: RE: Got it from Sue .pdf of SSSAJ glades Hg pub

Dan,

Thanks; I'd Emailed Matt Cohen for a copy.

Don

==========

-----Original Message-----
From: Scheidt.Dan@epamail.epa.gov [mailto:Scheidt.Dan@epamail.epa.gov]
Sent: Wednesday, May 06, 2009 10:32 AM
To: Axelrad, Don
Subject: Got it from Sue .pdf of SSSAJ glades Hg pub

(See attached file: Cohen_etal_SSSAJ_2009 THG soil.pdf)
==========

Dan Scheidt/R4/USEPA
Don.Axelrad@dep.state.fl.us
05/05/2009 01:45 PM
Subject .pdf of SSSAJ glades Hg pub

Don-

Do you have a .pdf of Cohen, et al 2009 re "Soil THg concentrations across the greater Everglades", SSSAJ 73:675-685.

If so could you e-mail a copy?

Thanks.

Dan Scheidt
USEPA
980 College Station Road
Athens, Georgia 30605
Phone: 706-355-8724
Fax: 706-355-8726
scheidt.dan@epa.gov