

Ministry of the Environment

בס"ד

Ms. Tehaukho Sinamis

Coordinator

**Industrial waste water and
contaminated Soils**

North district

Dr. Ilan Malester

LBS Coordinator

**Marine & Coastal
Environment Div.**



Marine & Coastal Environment Div.

Leon Doboin ז"ל (חמי)

Marine pollution prevention

בס"ד

From Land based
sources

Made in Israel

Marine & Coastal
Environment Div.₂

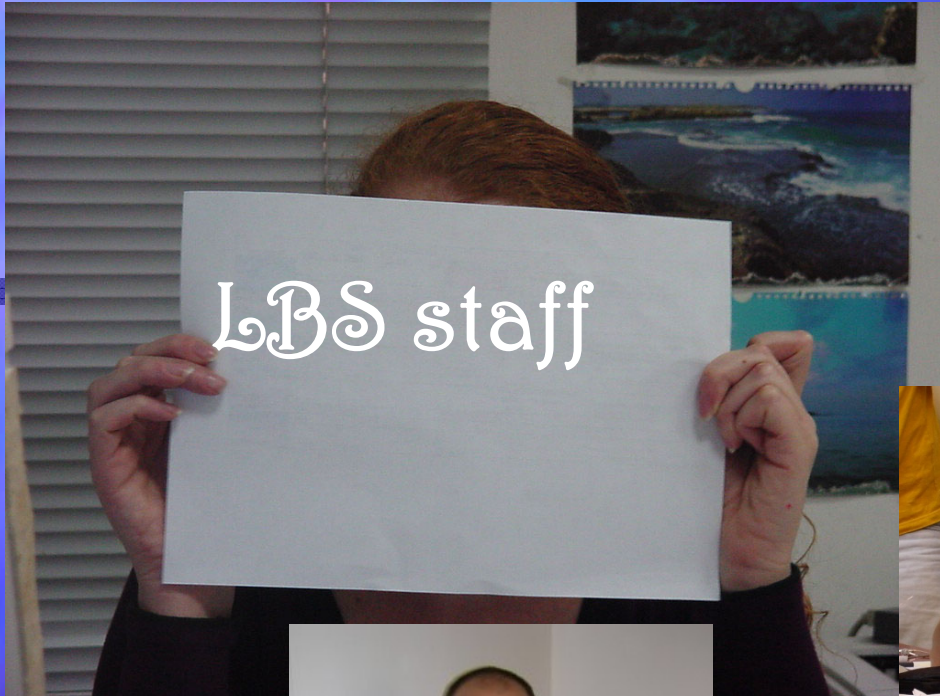


The Team

- 25 people
- Professionalism & Determination
- Marine pollution fund ~2 million Euros
- 4 boats
- Fighting oil pollution equipment
- Control patrol by plane
- 15 jeeps
- Communications means
- Salaries \$#@!







LBS staff

*Dr. Ilan
Malester*



*Dr. Iris
Safraï*



*Eyal
Rom*



Mirí Shlomo

Report control



WWW.sviva.gov.il



מאזן מזהמים רב-שנתי
לים התיכון 2004 - 1998



Israel
environmental
standards 2002



Israel Environment
Bulletin
No 32
May 2007

**Barcelona Convention (1976) for the protection of the
Mediterranean Sea – LBS protocol (1980/1996)**

Israeli Law 1988/1990/2005



The first idea of the law

On one foot...

No one should discharge
effluent into the sea,
except under a permit !



inter-ministerial committee

permit
applicant

<http://go.to/funpic>



Who's who – in the committee

- ✓ Environment (chair pers.)
- ✓ Health
- ✓ Trade & Industry
- ✓ Transport
- ✓ Defense
- ✓ Agriculture (fish dept.)
- ✓ Tourism
- ✓ Green ONG





**Balance of pollutants to
the Mediterranean sea**

**Dr. Ilan Malester
& Ing' Orty Marek**

Marine & Coastal Environment Div.

Balance of pollutants
into the Mediterranean
Sea
1998 - 2004





**20 most significant LBS
from about 100 sources**

**From Neanderthal
reports (if we get
them),
and no less than
from 1998**

Two & 1/2 main sources of mercury pollution

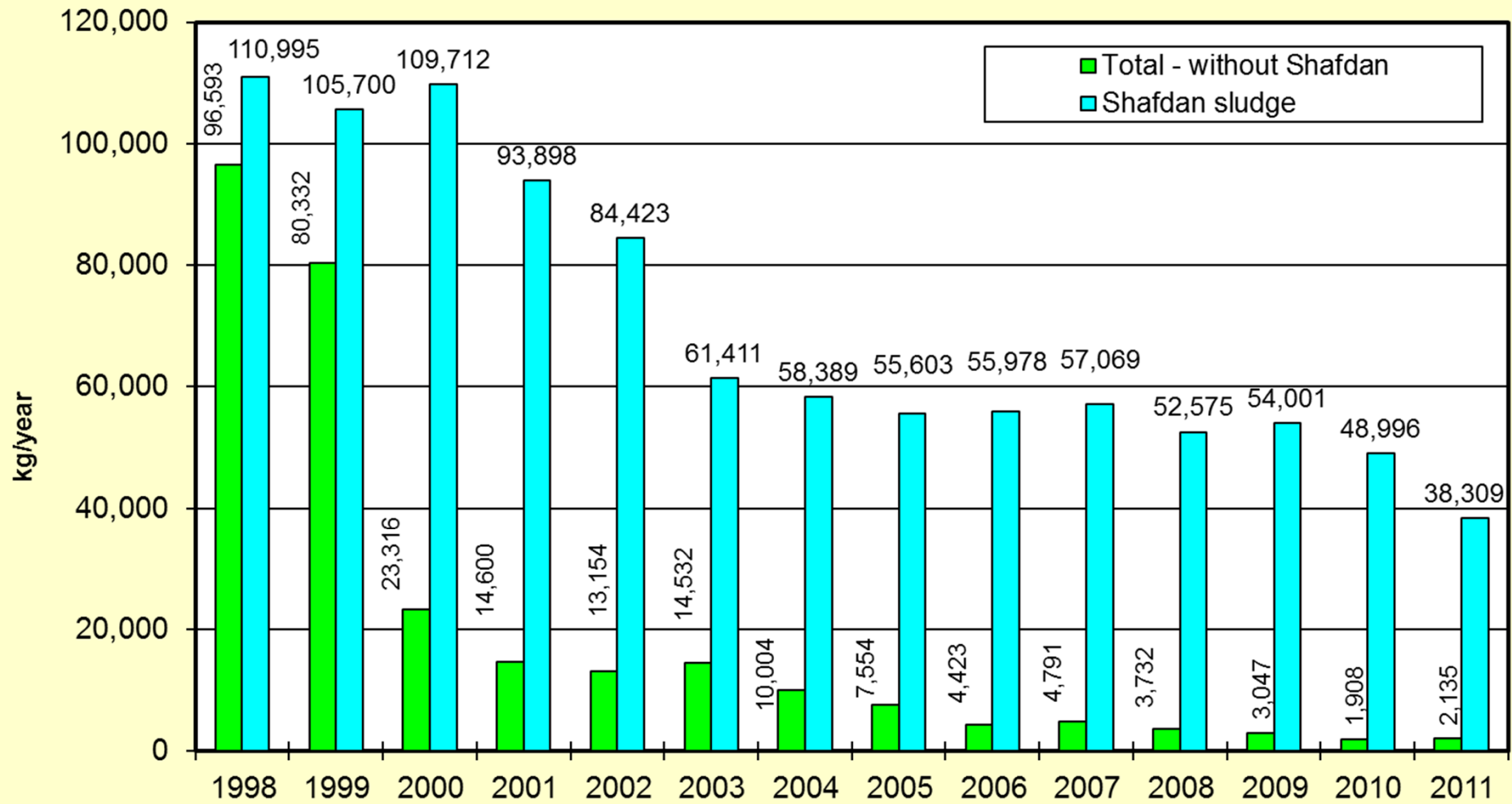


La mine – Lucien Jantzen

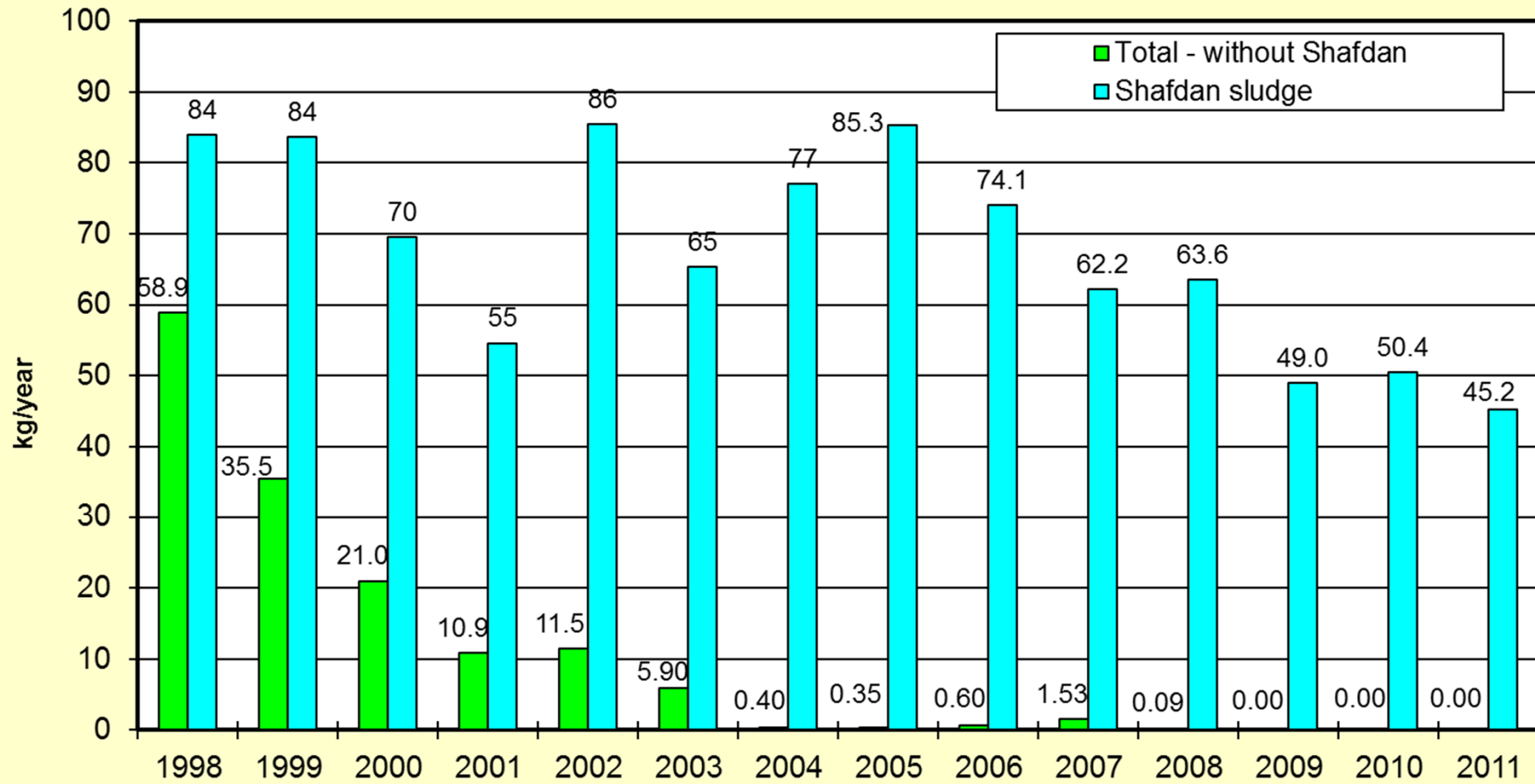
No mercury mines !

- 1) Tel Aviv area MWW sludge**
- 2) Chlor alkaly plant PVC**
- 3) Fertilizer plant**

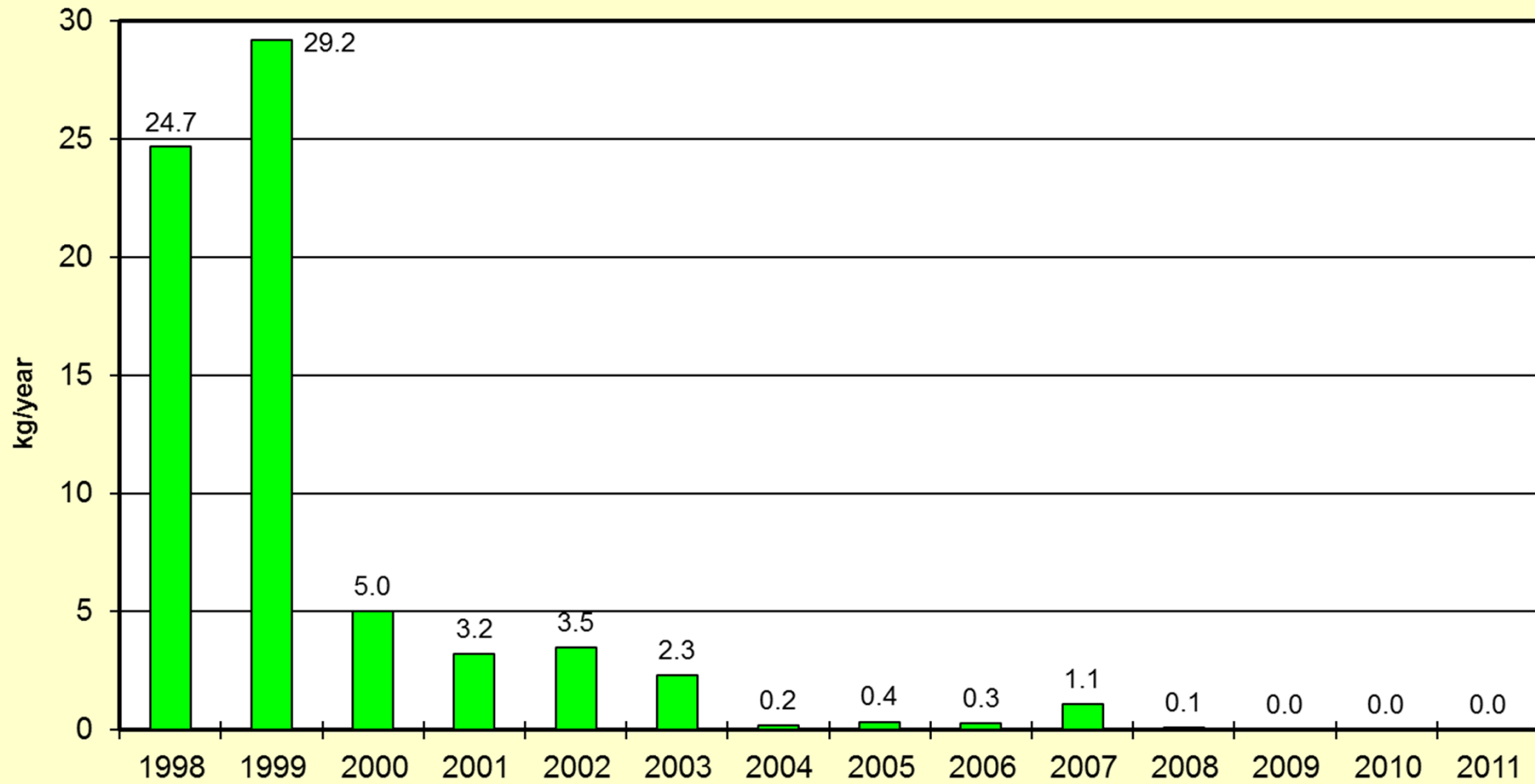
Total heavy metals discharged to the sea 1998-2011



Mercury to the sea 1998-2011



Mercury discharged to the sea through Kishon river 1998-2011



Shafdan – Sludge to the sea



Tel Aviv area – 2.5 to 3 million inhab.

Shafdan – Sludge to the sea



**350,000 m³/day
MWW**

**5.6 million m³/year
sludge 0.7% TSS**

N-Viro process – 15% of the sludge





Reused water



al Envir

Pipe to 4.5 km from the shore

Ashdod



shafdan

Tel Aviv



Pointer 31°56'33.28" N 34°40'28.06" E elev 0 ft

Streaming 100%

Eye alt 42167 ft

© 2006 Europa Technologies
Image © 2006 DigitalGlobe
Image © 2006 TerraMetrics

A photograph of a yellow plastic tray containing dark grey, moist sediment. The sediment is piled in the center and right of the tray, with some smaller clumps and a thin layer of water. Numerous small, white, shell-like particles are scattered throughout the sediment. The tray is placed on a wooden surface, and a white wall is visible in the background.

Sediment



**Sludge from the bird
view**

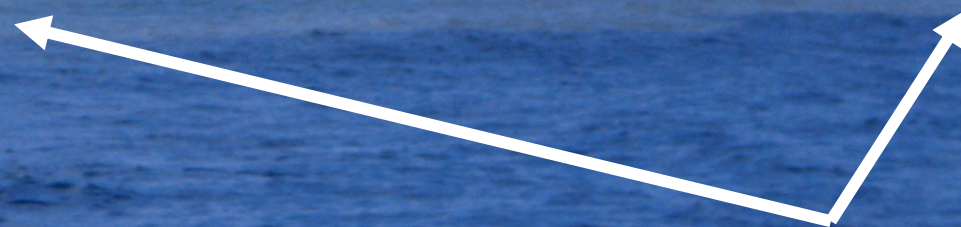
(Poor bird)

Photo: Rani Amir



Ashdod

sludge



Meet the Press at the sludge !







The journalists at the sludge site



The program !



Get out from the sea! 2015 ■

Reduce pollution of heavy metals and mineral oil in the sludge ■

Check the sludge composition ■

Marine monitoring ■

Thickening and Centrifuging





Thickening



centrifugation

Marine & Coastal Environment Div.



centrifugation

2008

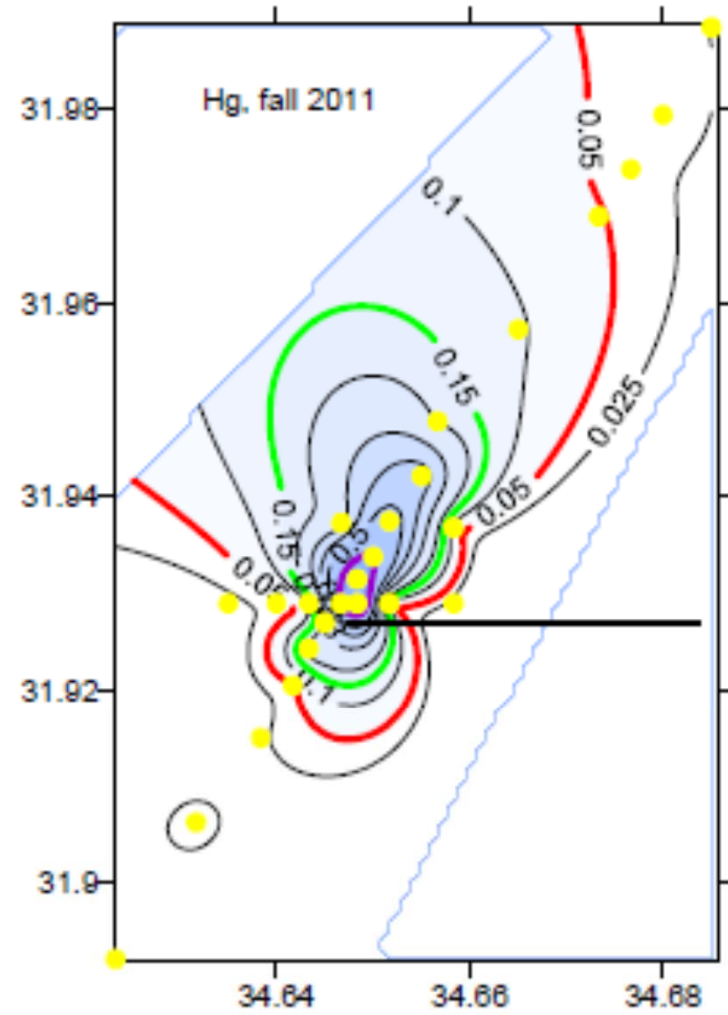
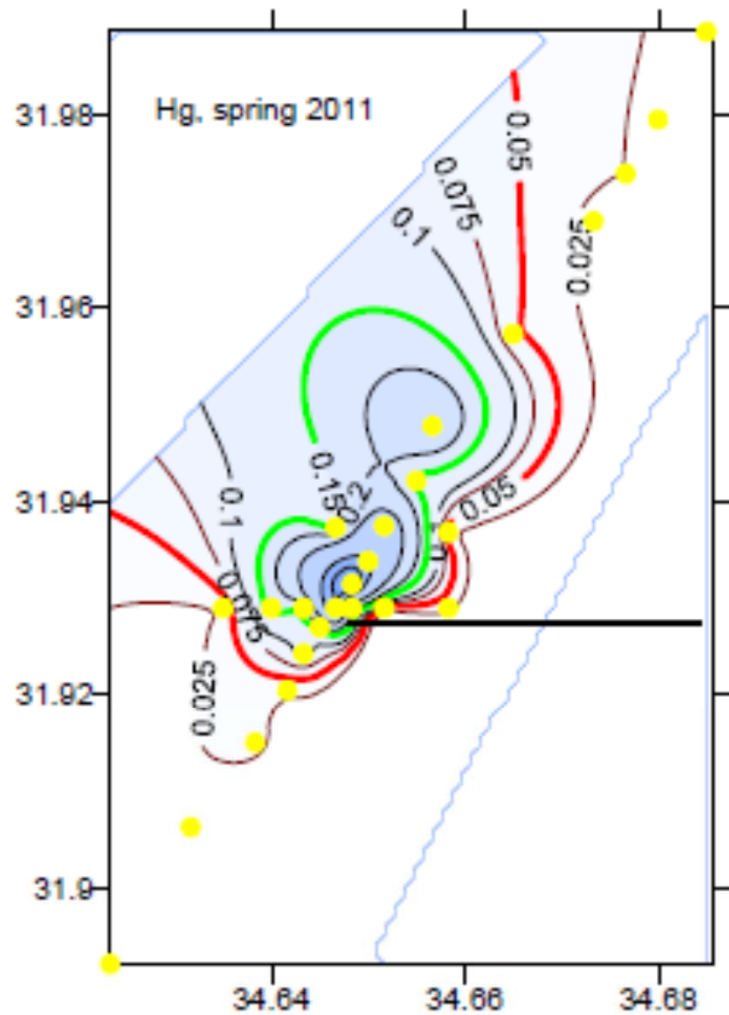
Marine & Coastal Environment Div.

34

Smell treatment

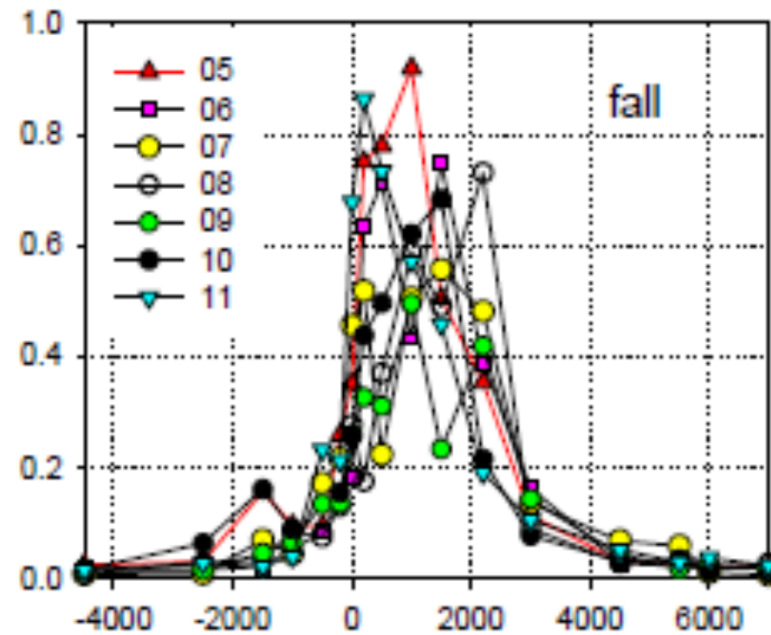
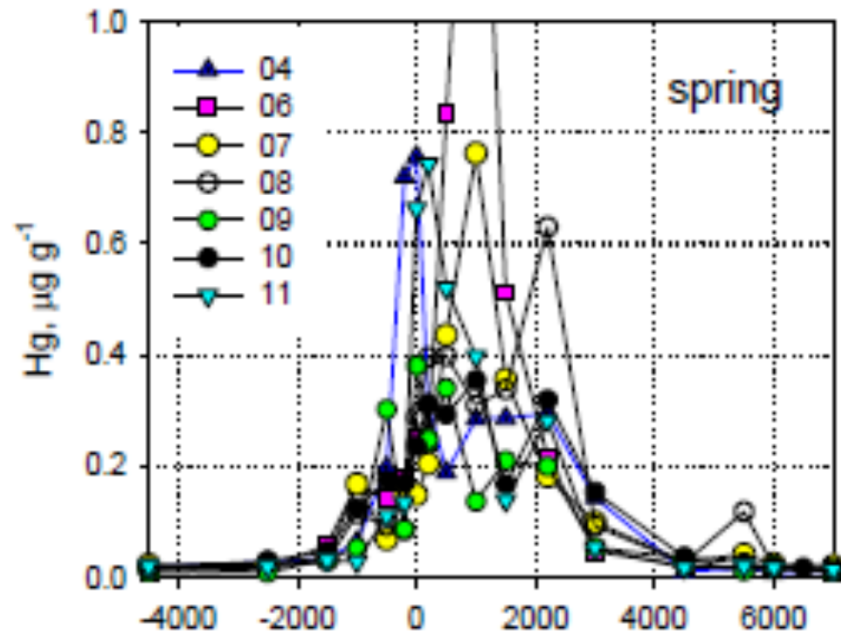
filters





Mercury in sediment – sludge discharge

Marine & Coastal Environment Div.



Marine & Coastal Environment Div.

The program:

- ✓ **Primary precipitation**
- ✓ **Sludge digestion**
- ✓ **Compost to agriculture**
- ✓ **Out of the sea**

Could not be build: Incineration

EIL Acre – chlor alkaly plant

PVC production





Electrolysis of salt with mercury

Marine & Coastal Environment Div.

Under the electrolysis hall



Contaminated Salt reuse



Precipitation of mercury





Mercury monitoring on line

Marine & Coastal Environment Div.

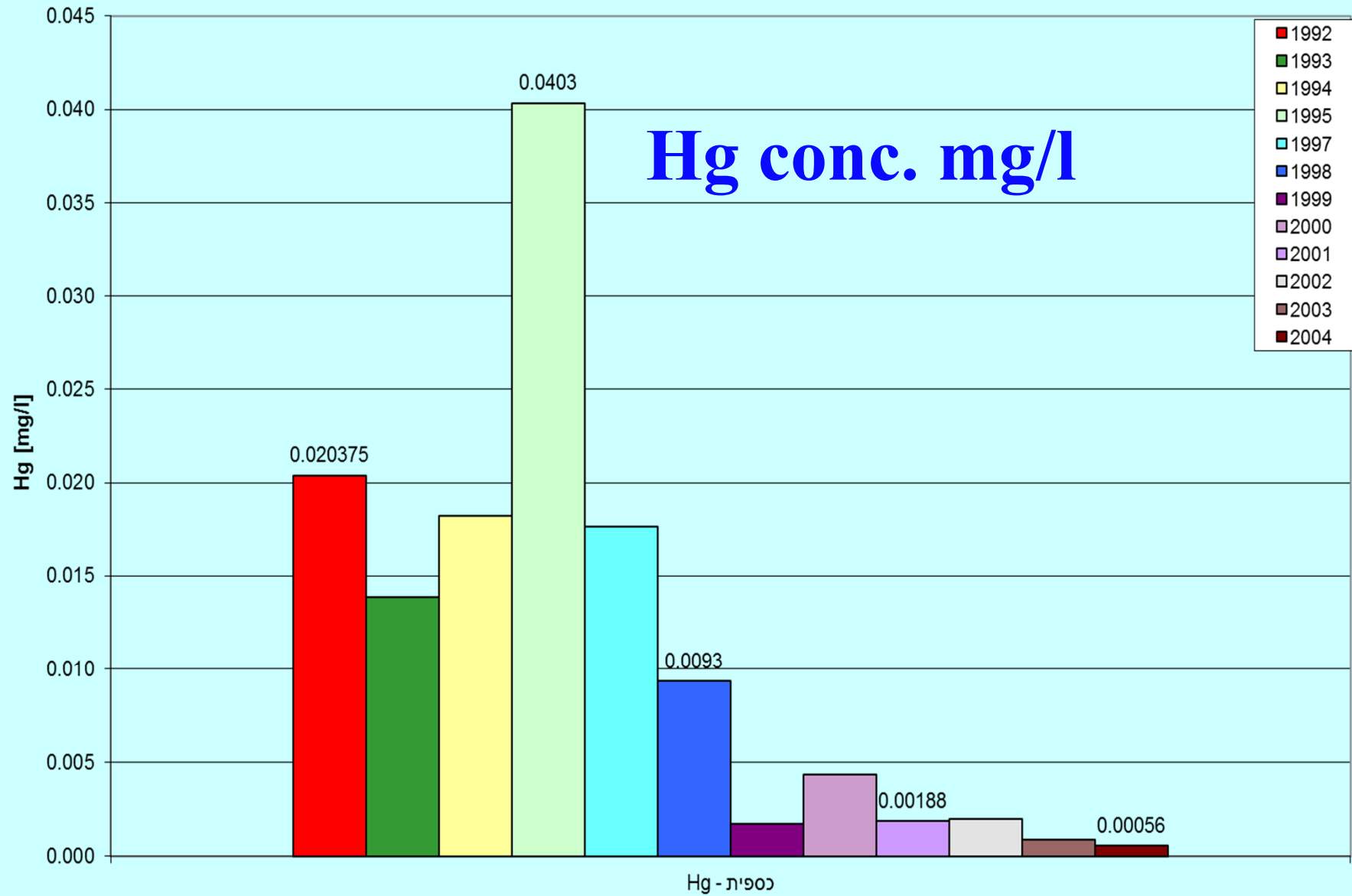
44

EIL – just one pipe

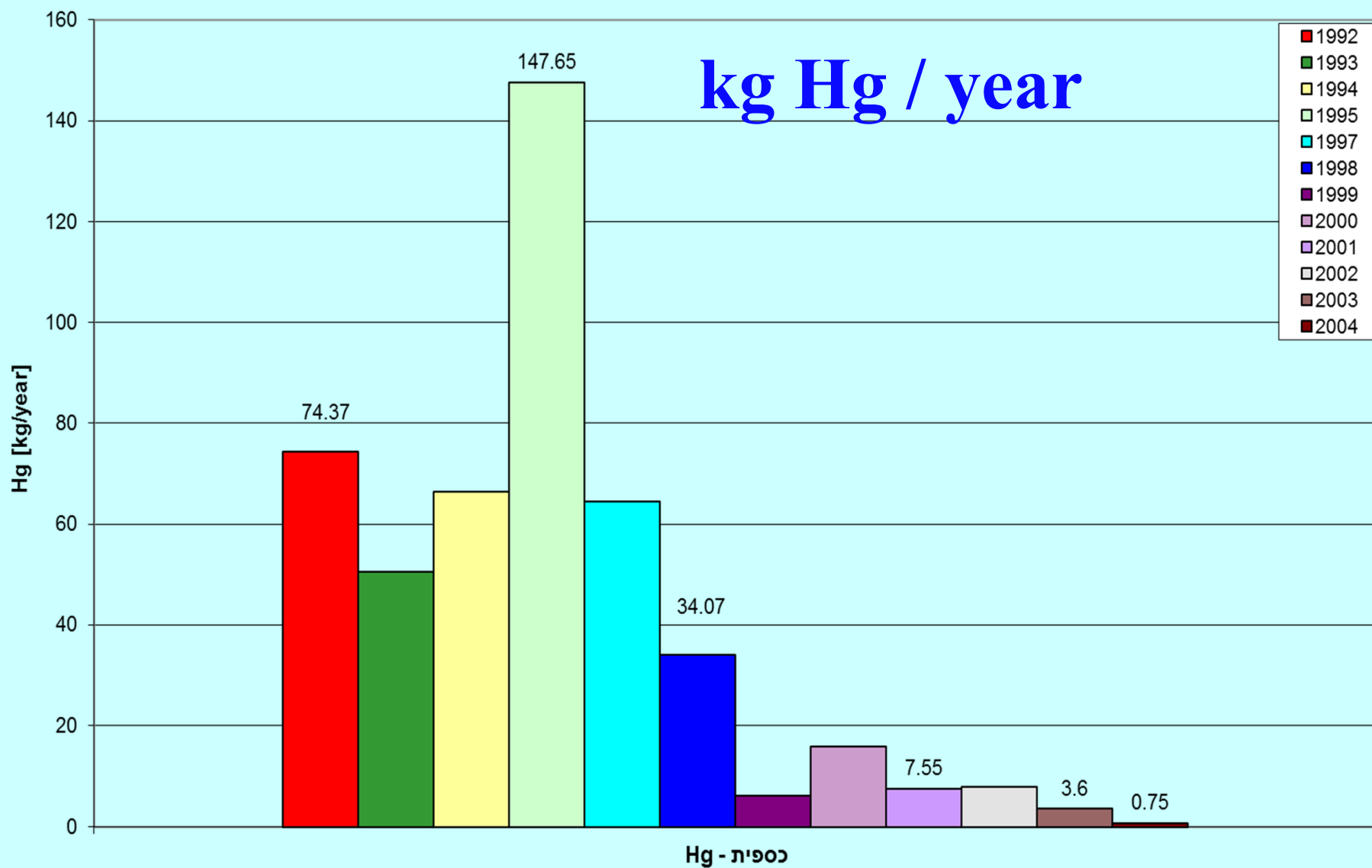
From 11 to 1



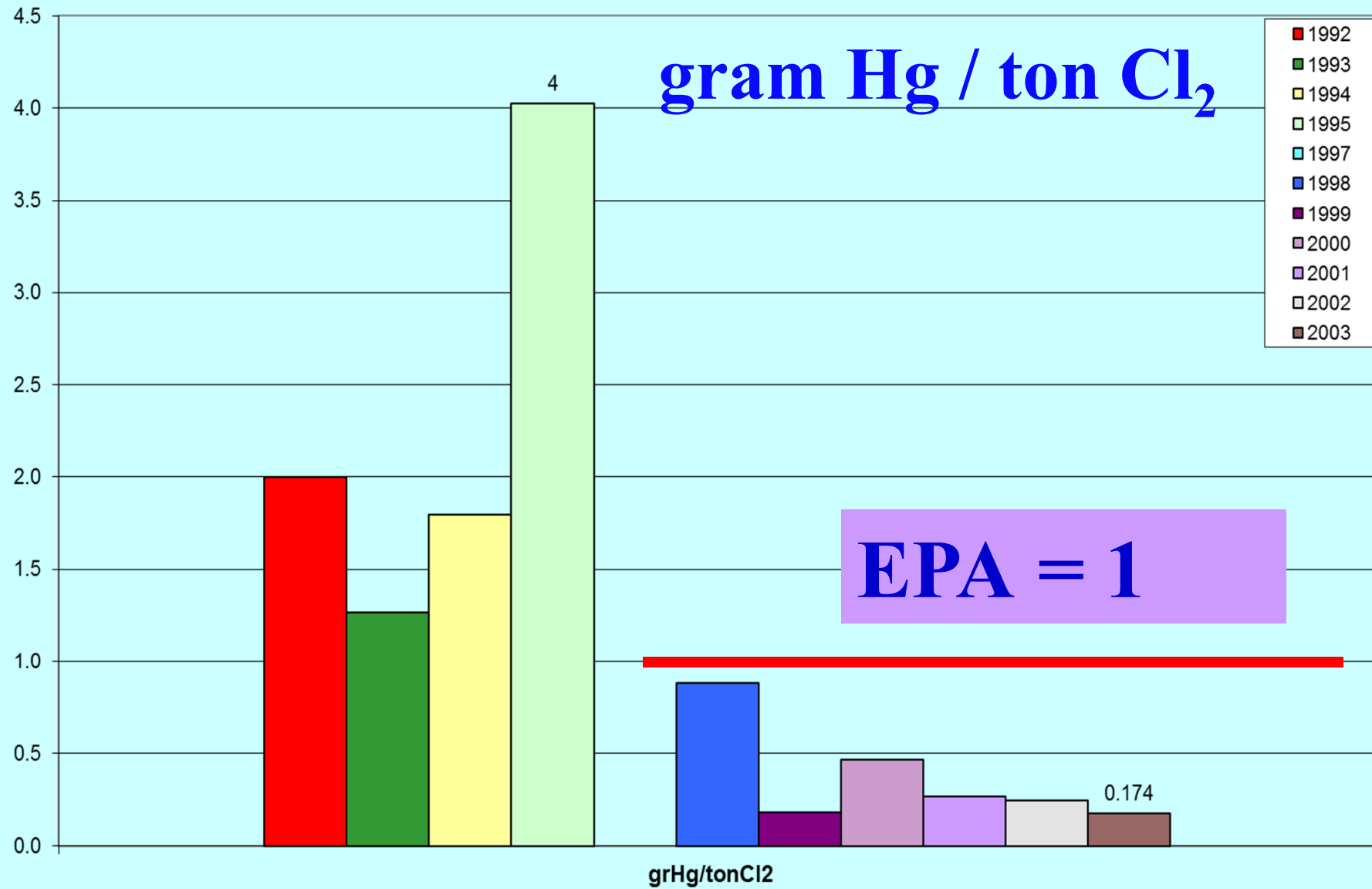
תעשיות אלקטרוכמיות - ריכוזים ממוצעים שנתיים - כספית
[מ"ג/ליטר]

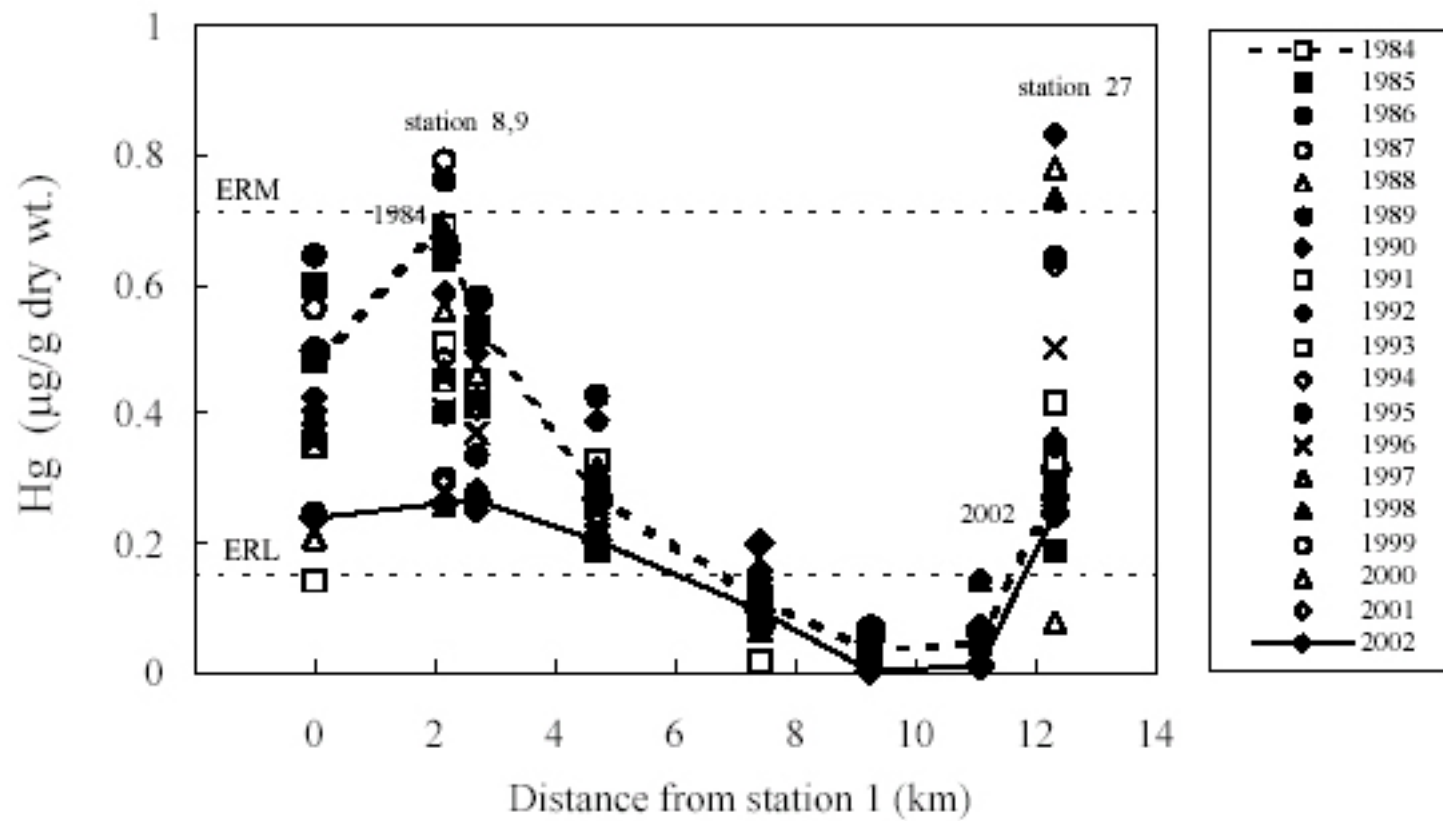


תעשיות אלקטרוניות - עומסי כספית שנתיים
[ק"ג/שנה]



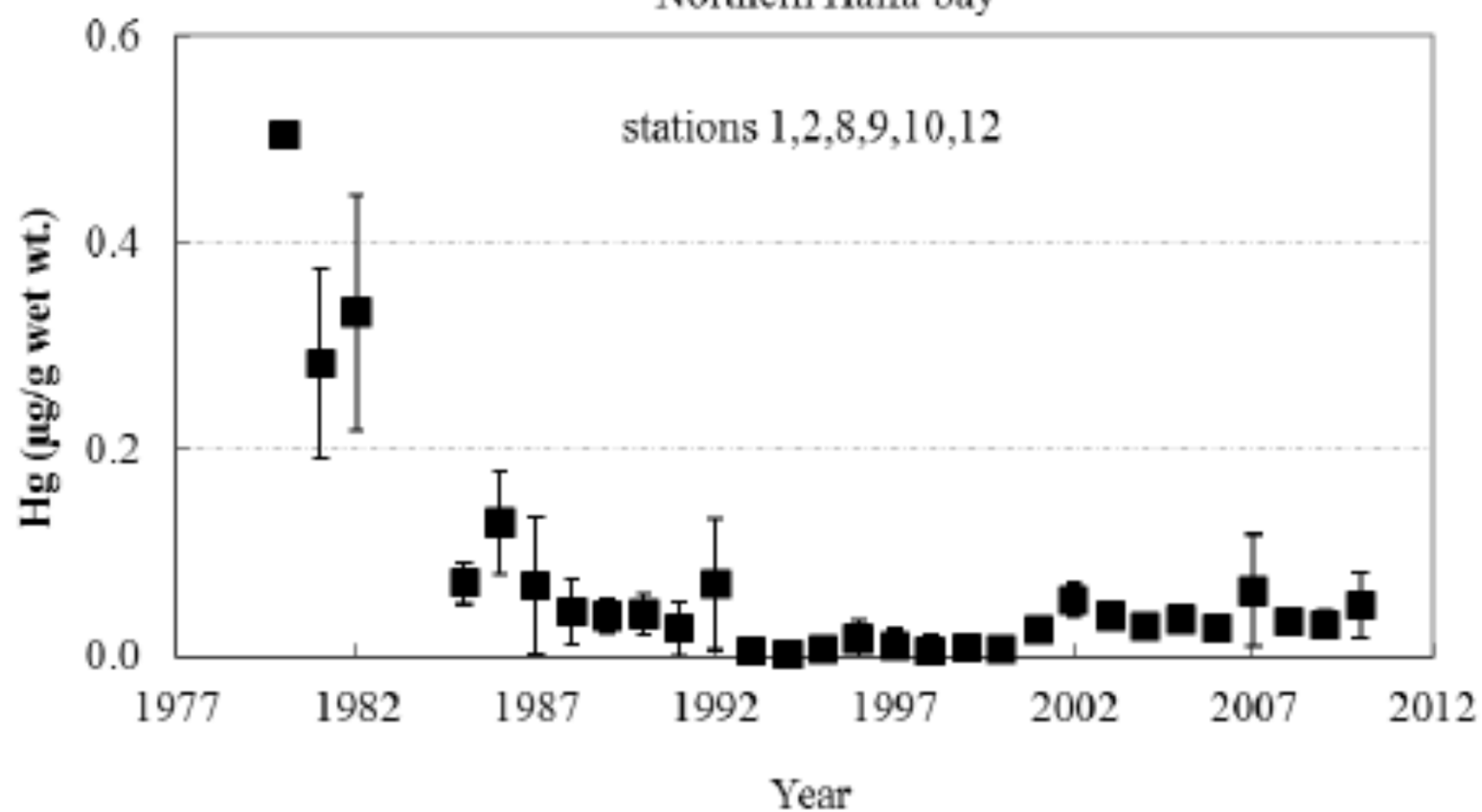
תעשיות אלקטרוכימיות
גר' כספית לטון כלור מיוצר



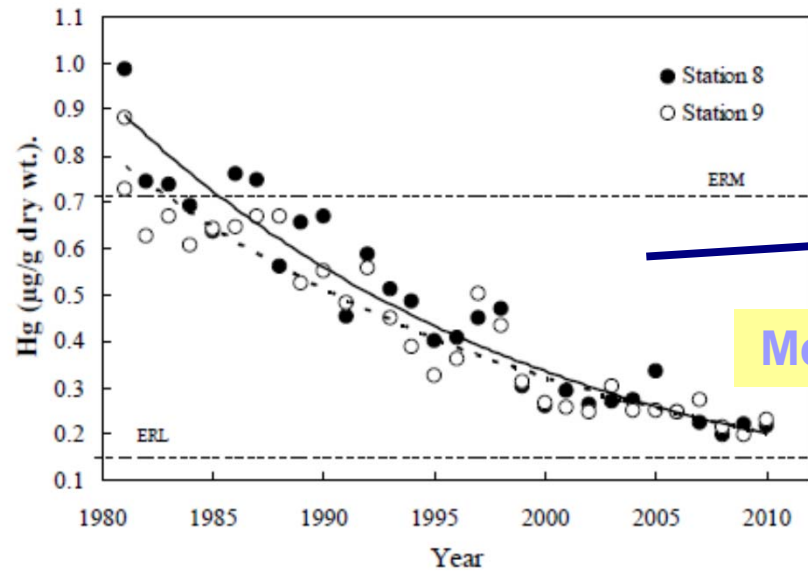


איור 2: ריכוזי כספית ($\mu\text{g g}^{-1}$ dry wt.) בסדימנטים באזור הרדוד של מפרץ חיפה בשנים 1984 - 2002.

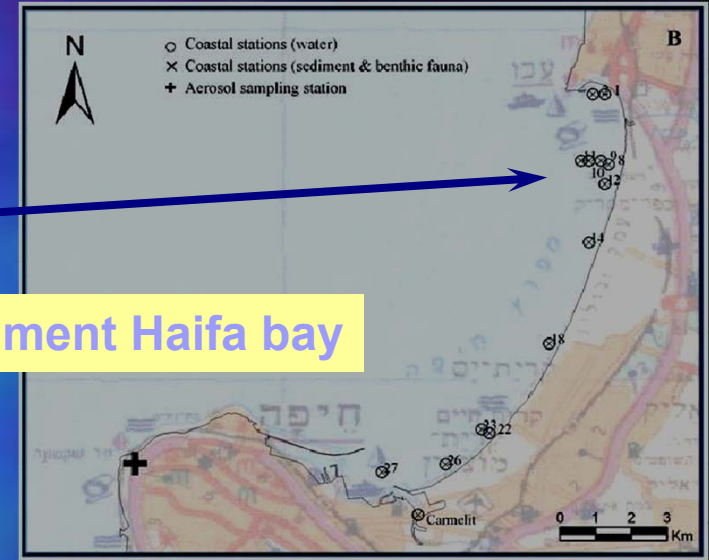
Mactra corallina
Northern Haifa bay



איור 16: ירידת ריכוזי הכספית ($\mu\text{g g}^{-1}$ wet wt.) ממוצע שנתי \pm סטיית תקן) בצדפות ממפרץ חיפה: (2009 - 1975) *Donax sp.*; (2010 - 1980) *Mactra corallina*.

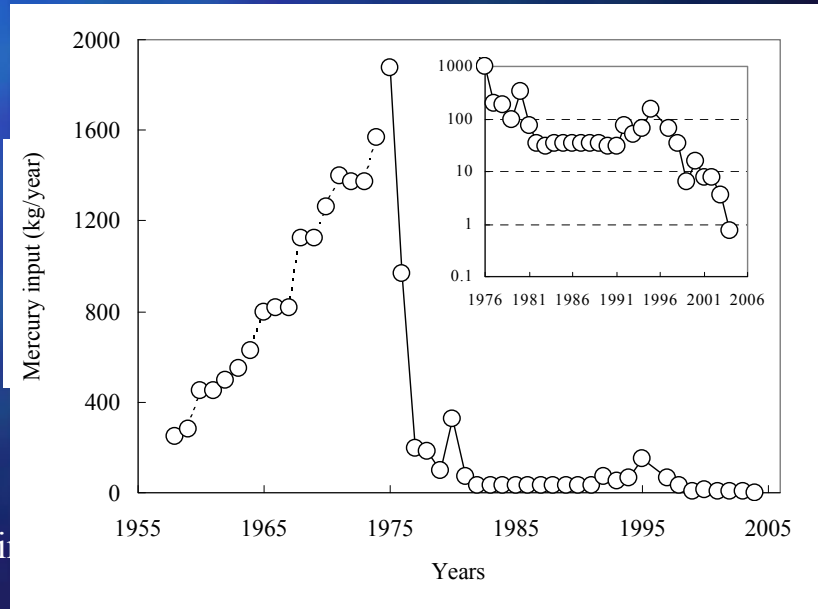


Mercury in sediment Haifa bay



איור 4: ריכוזי כספית (µg g⁻¹ dry wt.) בסדימנטים בתחנות 8 ו-9 במפרץ חיפה (מול "התעשיות האלקטרוכימיות"), בעומקי מים של 3-6 מ', בשנים 1981-2010.

Mercury discharge in north Haifa bay



tal Envi



Empty mercury bottles



Precipitation pond



Under the electrolysis hall

01/2003

06/200

9

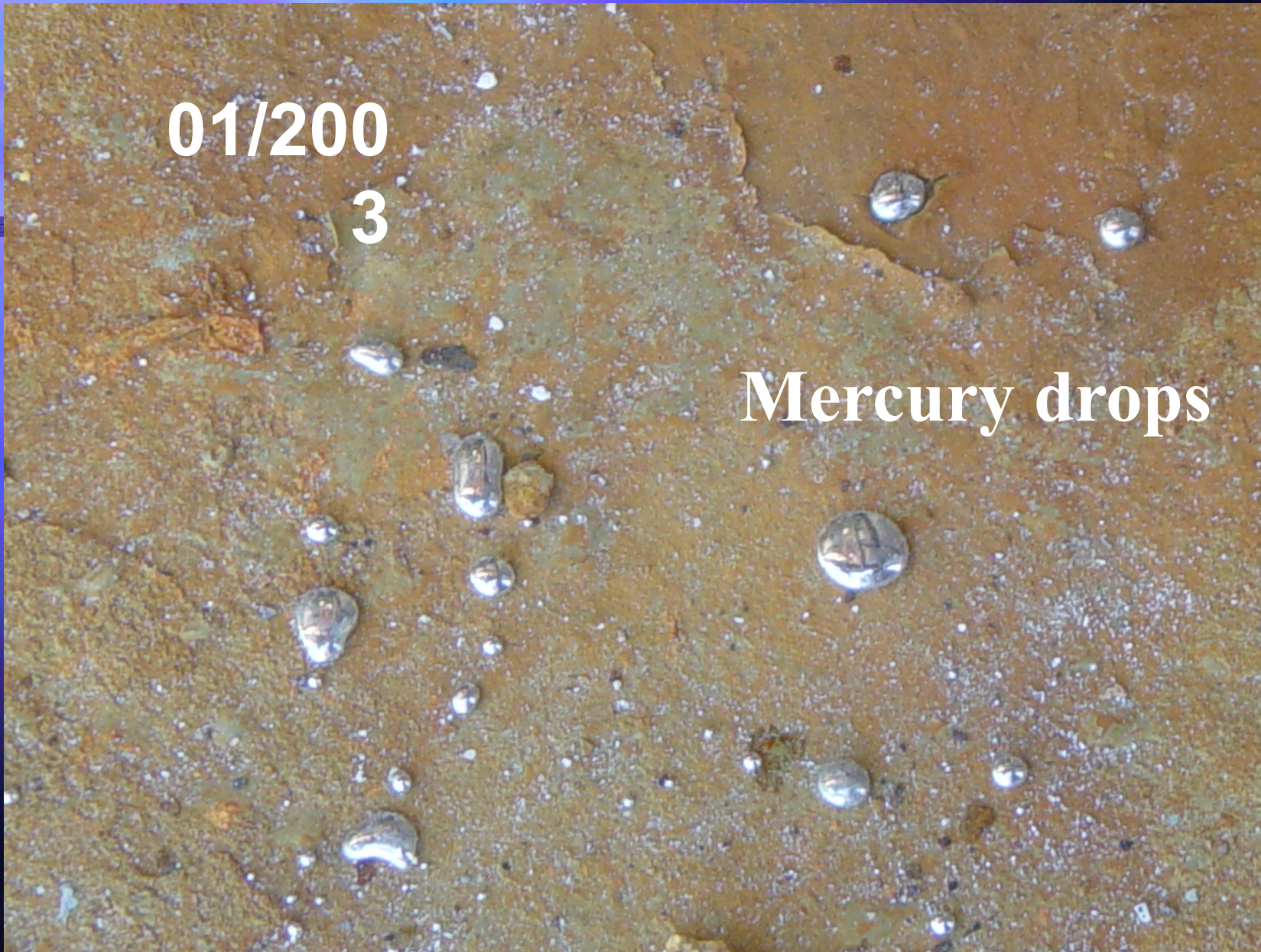
Electrolysis plant

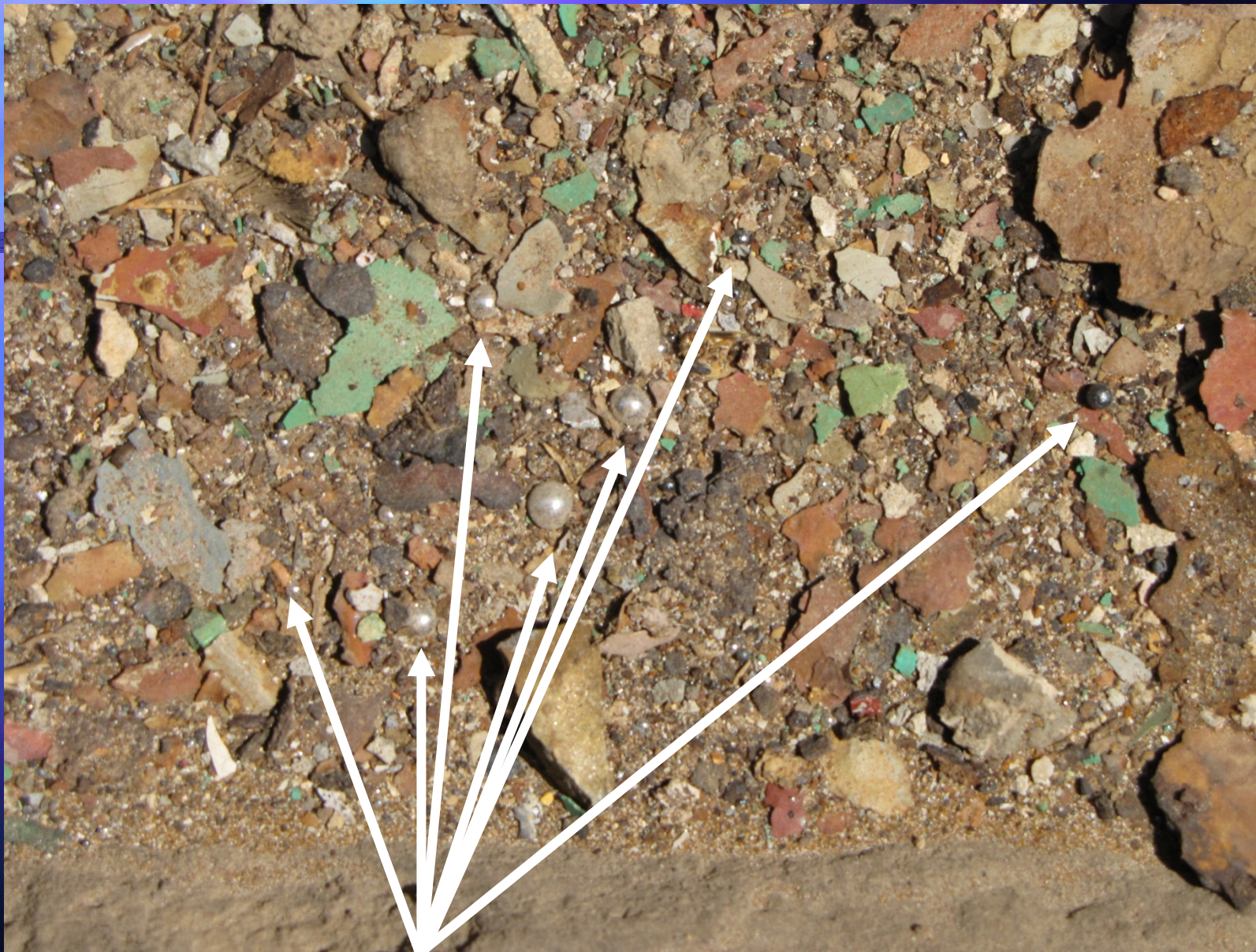


01/200

3

Mercury drops





Mercury drops Marine & Coastal Environment Div.

06/2009

תעשיות אלקטרו-כימיות – עכו EIL



01/2003

Marine & Coastal Environment Div.

06/2009





01/2003

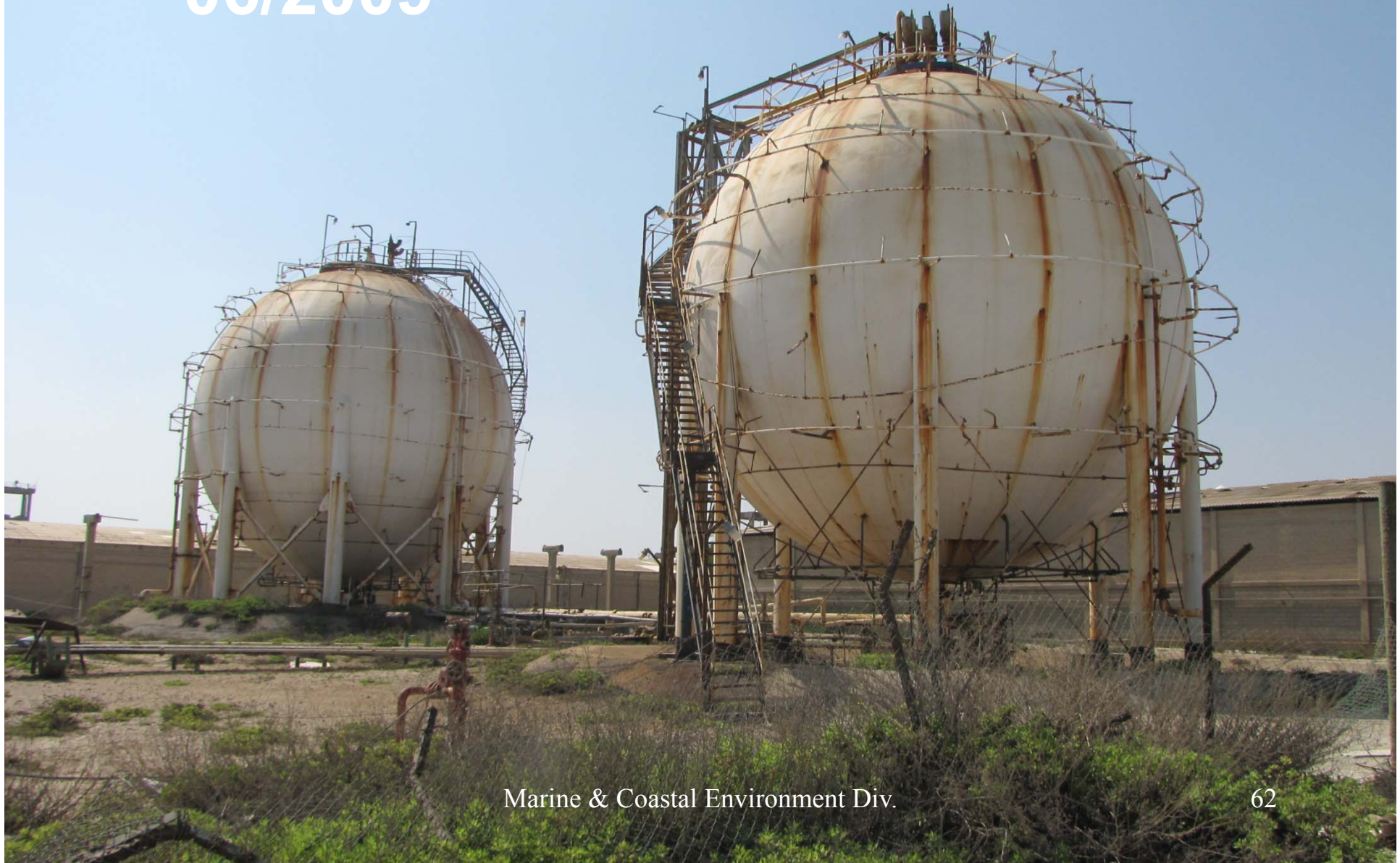


Marine & Coastal Environment Div. **06/2009**

12/2002



06/2009





06/2009

Marine & Coastal Environment Div.

63



Marine & Coastal Environment Div. **06/2009**

Sinamis job !

Site monitoring

Potential contamination expertise

Decontamination program

2010 - soil gas investigation:

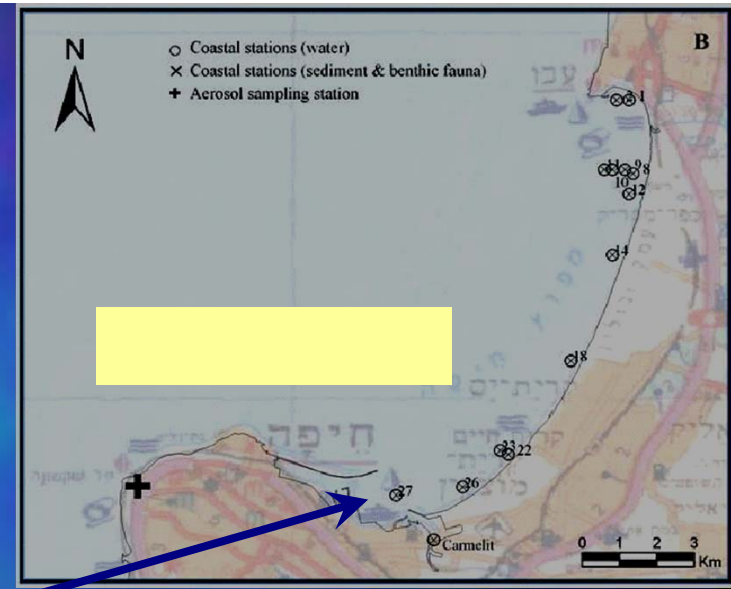
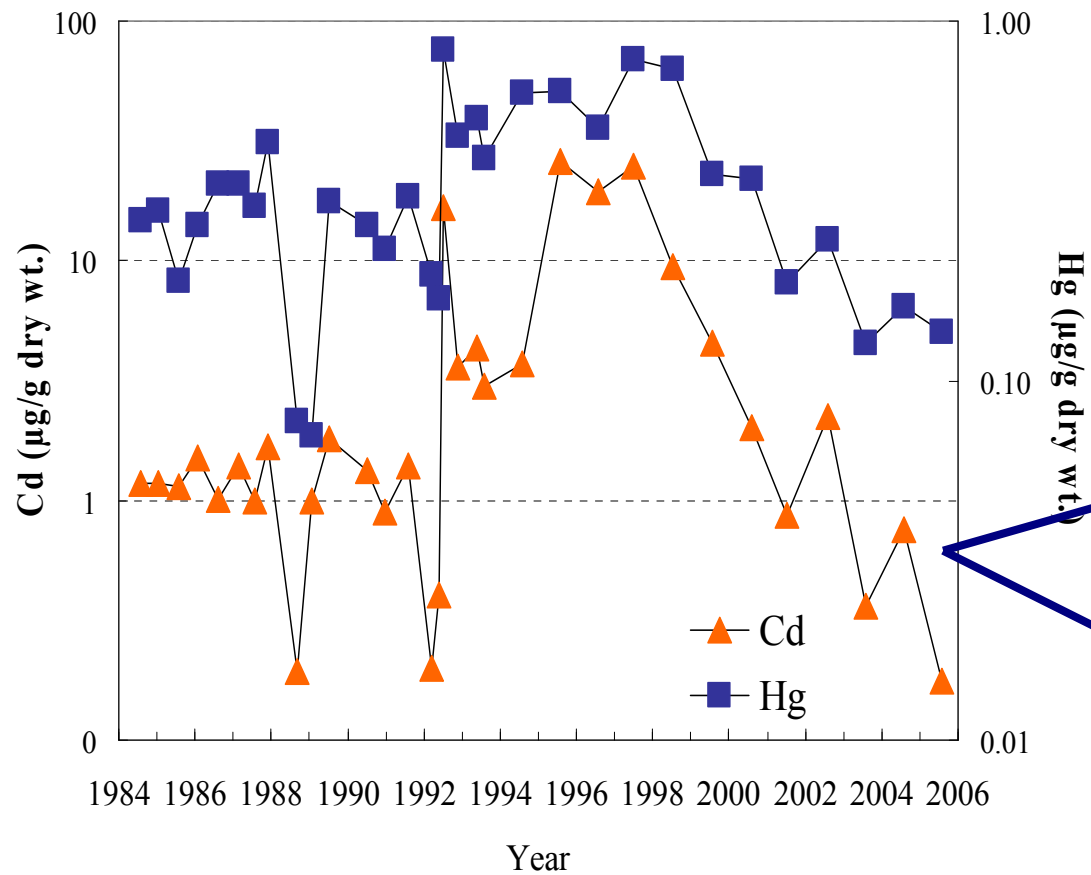
Major soil gas and groundwater contamination:

- ✓ Mercury
- ✓ PCE (tetra-chloroethylene)
- ✓ TCE (tri-chloroethylene)
- ✓ Linden (pesticide)
- ✓ TPH mineral oil

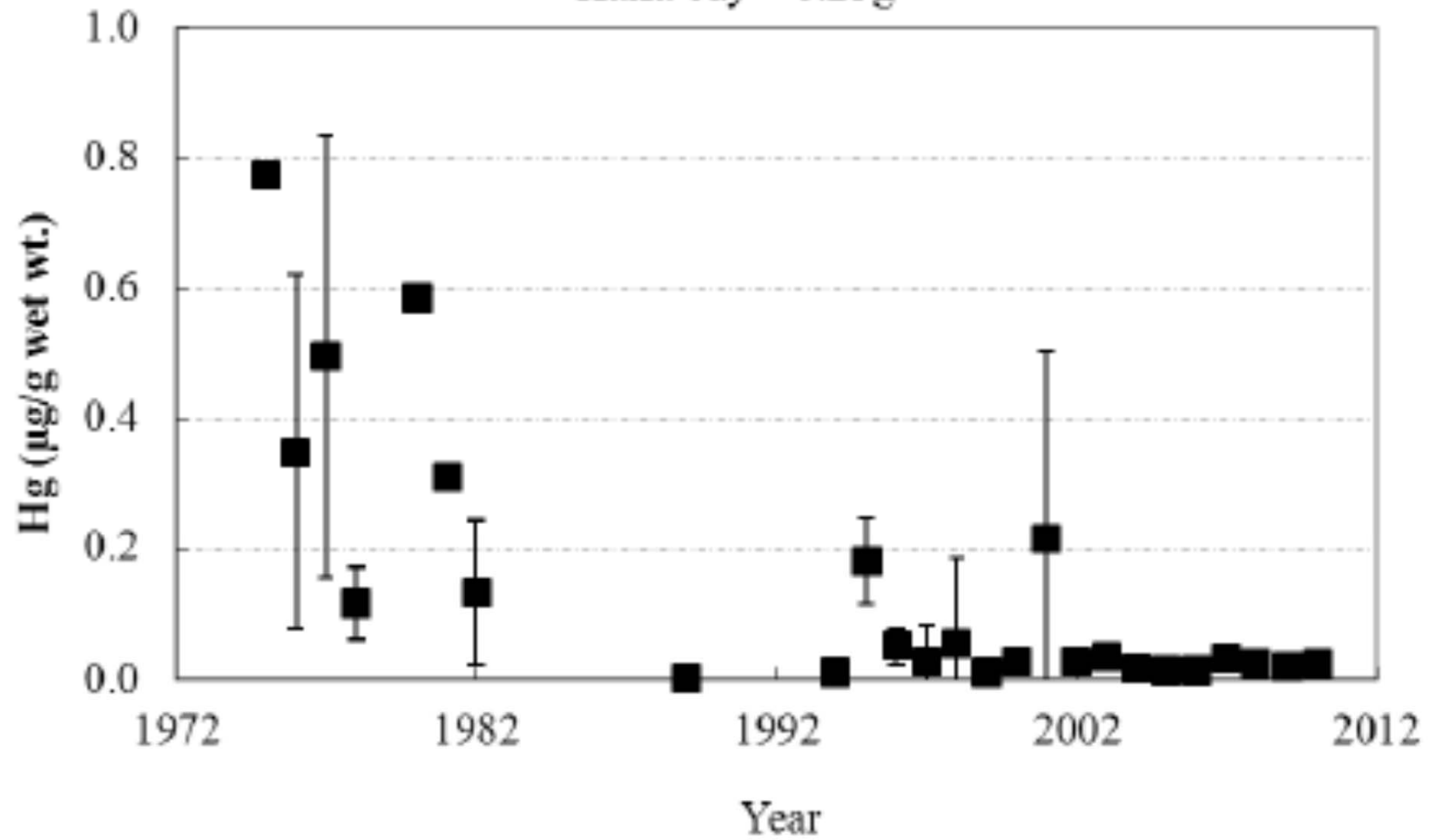
•

**Today, under the Israel ministry
of environmental protection:**

**RBCA- risk based corrective action
method in order to redevelop the site.
A site specific risk assessment method,
based on human health risk and
environmental risk assessments in order to
decide the decontamination target levels**



Donax Sp.
Haifa bay > 0.25g



That's all folks !

Please indicate your appreciation ...

- I just woke up !**
- I'm hungry !**
- Don't wake me up !**
- I will be happy to contribute to the "Marine Fund".....\$**
- I would like to see some more slides...**



Haifa bay at night