Risk Assessment of the Area Offshore of Coke Point

Sparrows Point, Maryland

June 1, 2011

Background Information

- MPA proposes use of Coke Point – part of the Sparrows Point Steel Mill - as a DMCF
- Sparrows Point Steel Mill is regulated by EPA and MDE due to past chemical releases
- Site assessment found chemicals potentially related to the site in sediment and water
  - Metals
  - Benzene and PCBs
  - Polycyclic aromatic hydrocarbons (PAHs) from coke production
- MPA commissioned a risk assessment of the offshore area for due diligence

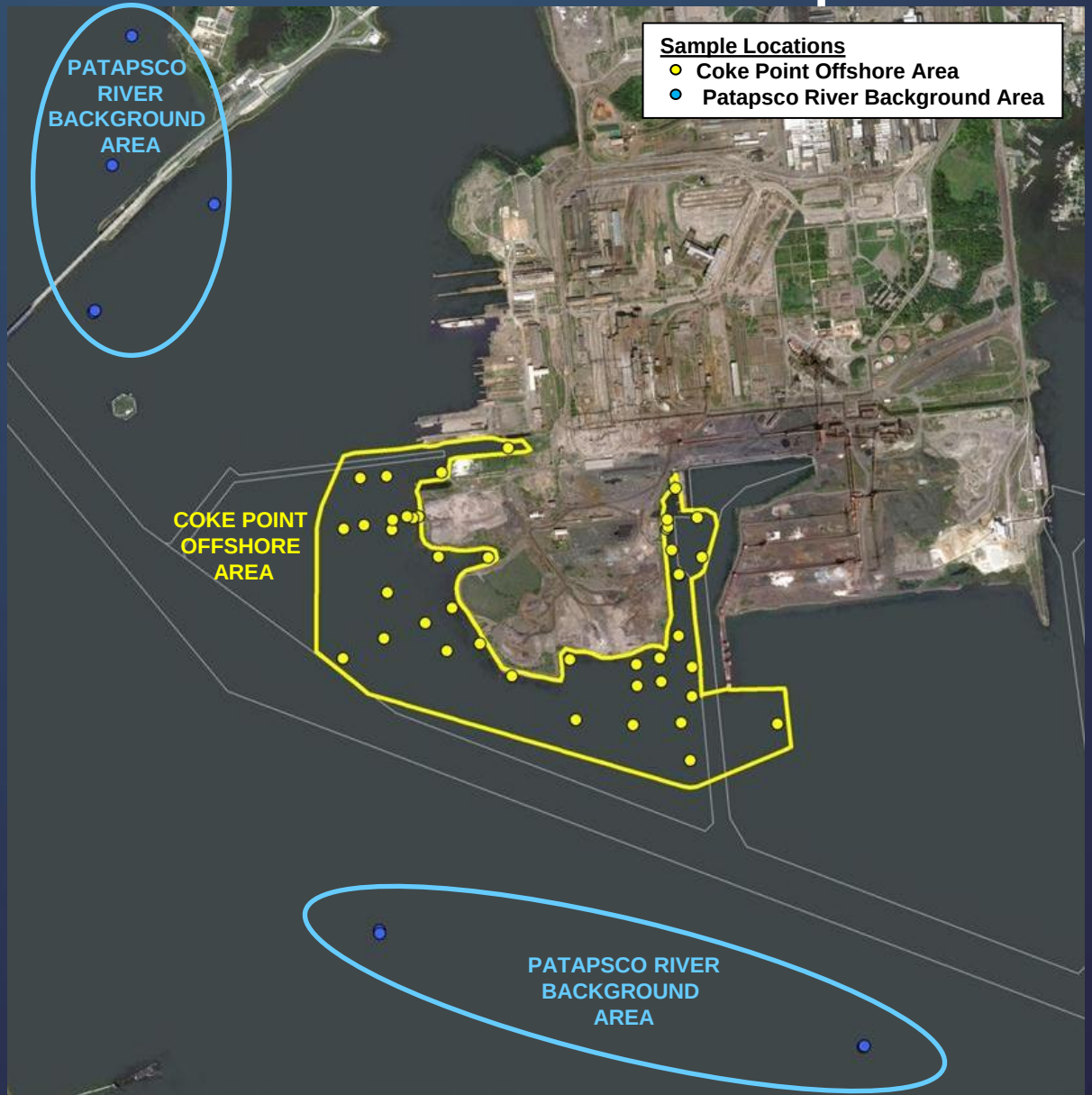
Site Location Map
TURNERS STATION
EDGEMERE
I-695
SPARROWS POINT
COKE POINT
FT. HOWARD

What is a risk assessment?

- Risk: the likelihood that harmful effects will occur because of exposure to a chemical
- A risk assessment predicts the type and amount of risk to people or wildlife
- Risk depends on:
  - Amount of chemical present in the environment
  - Amount of contact with chemical by people or wildlife (exposure)
  - Toxicity of the chemical
- EPA has standard methods for predicting risk, but all predictions have uncertainties
- Assessment methods are precautionary; they tend to over-estimate risks for the sake of safety
- Risks indicate ***potential*** harm, not ***actual*** harm

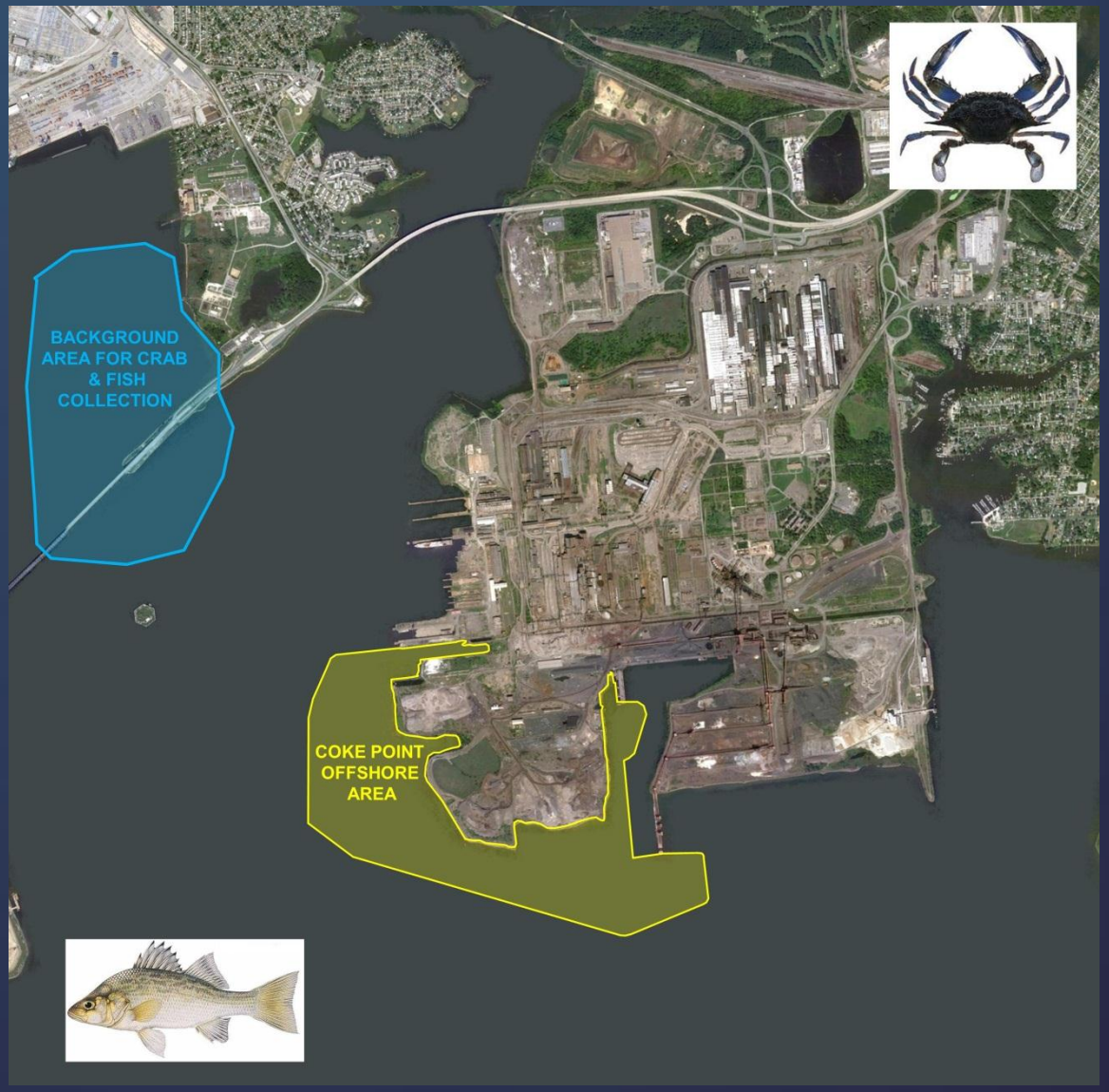
Risk Assessment Study Area: Sediment and Surface Water Samples

- Assessment evaluated two study areas:
  - Coke Point Offshore Area
  - Patapsco River Background Area
- Samples were collected from each area and analyzed for chemicals
- Results were compared between the study areas to determine which risks are specific to Coke Point



Risk Assessment Study Area: Sediment and Surface Water Samples

- Collected from near Coke Point and in the background area
- Tissues from fish and crab were sampled and analyzed
  - White perch
  - (whole and filet)
  - Blue crab (meat & mustard)
- Results were incorporated into the risk assessment for people and wildlife



Human Health Risk Assessment

- Assessment examined at contact using different scenarios
- Assessed children, adolescents, and adults
- Examined consistent, long-term contact

Activities Considered in the Risk Assessment	
Recreational User	• Eats crabs and fish • Contacts sediment • Contact and swallows water while swimming
Watermen	• Eats crabs and fish • Contacts sediment and water while pulling in catch

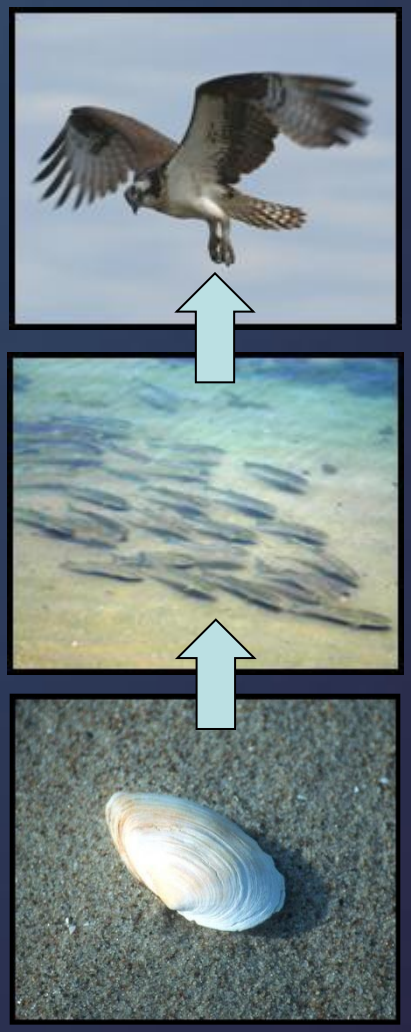
- Examined risks of cancer and other health impacts
- Compared risks between the Coke Point Offshore Area & background area
- Compared risks to levels considered acceptable and unacceptable

Human Health Scenarios

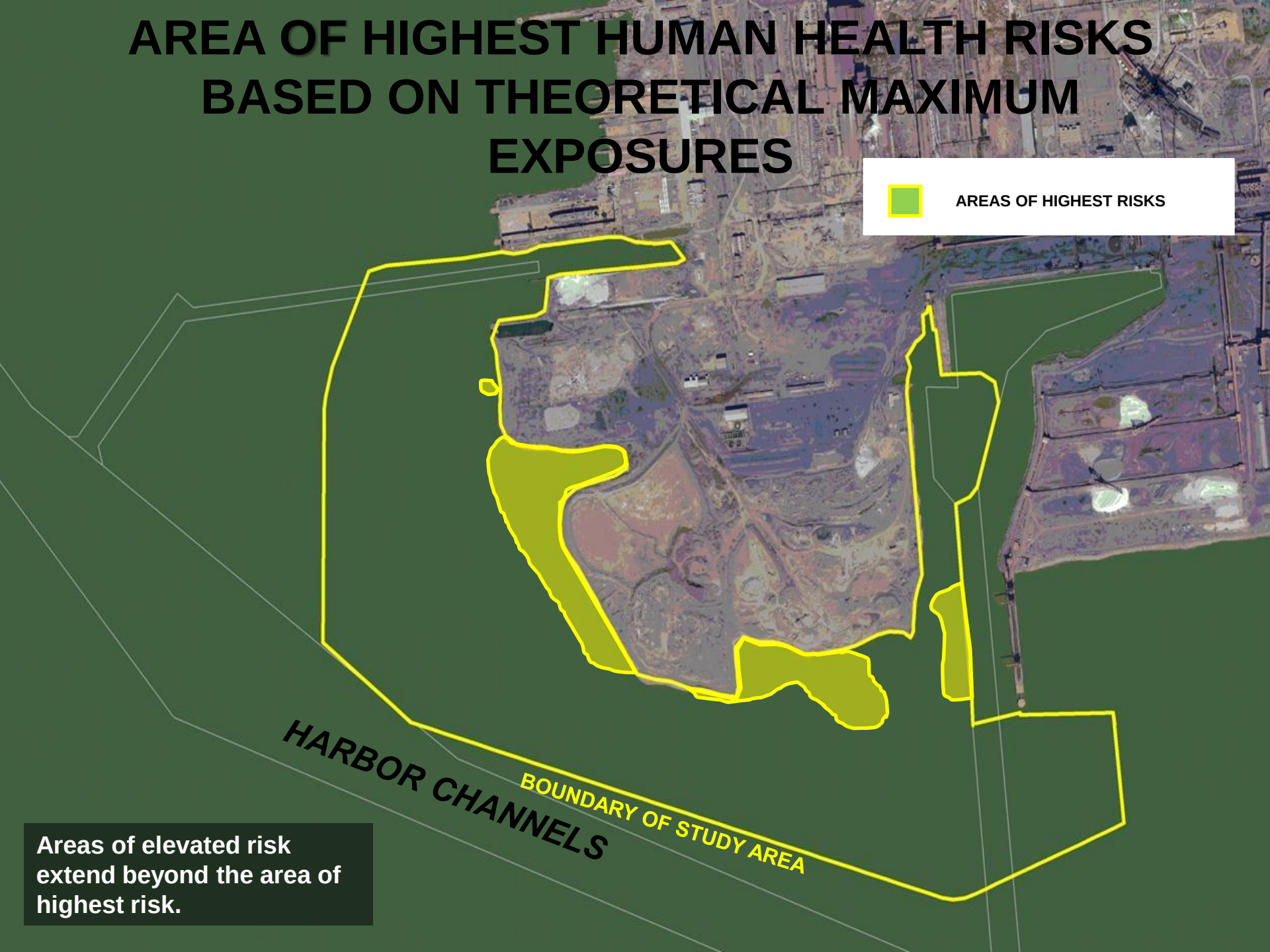
- The risk assessment includes two separate evaluations for human health
- The risk assessment for Public Health Impacts provides a realistic estimate of risks
  - Expected contact is based on current conditions of offshore area around Coke Point, which is an industrialized area
  - Uses concentrations from actual fish and crab
- The risk assessment for Source Characterization and Site Planning provides a conservative risk estimate useful for planning
  - Higher contact with offshore area is evaluated
  - Crab and fish concentrations are based on laboratory tests that determine the amount of chemical that accumulates in clams and worms

Ecological Risk Assessment

- Assessed risks to fish, crabs, and other animals living in the water
- Assessed risks to wildlife: heron, otter, raccoon and osprey
- Compared risks between the Coke Point Offshore Area & background area
- Compared risks to levels considered acceptable and unacceptable

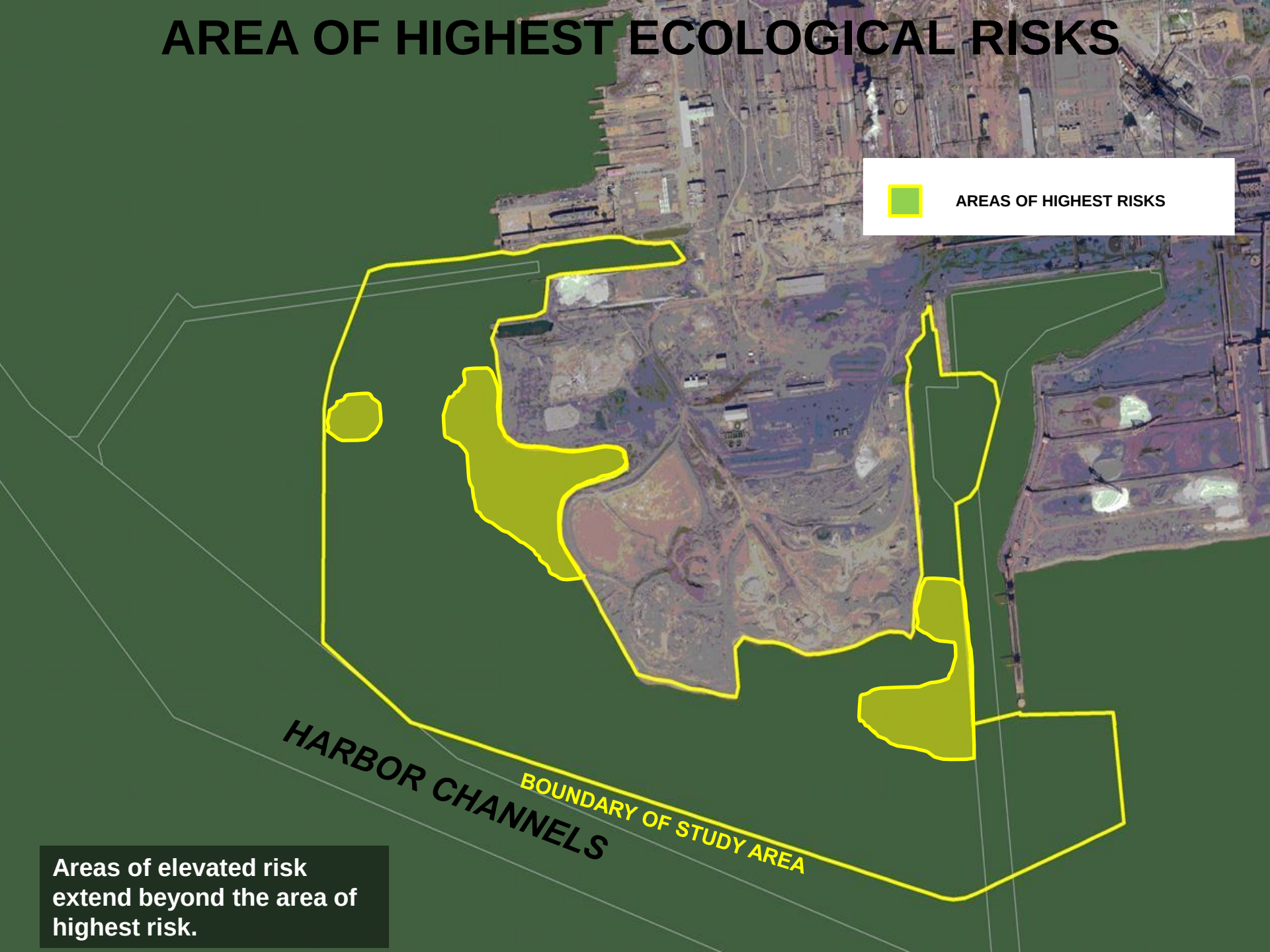


AREA OF HIGHEST HUMAN HEALTH RISKS BASED ON THEORETICAL MAXIMUM EXPOSURES



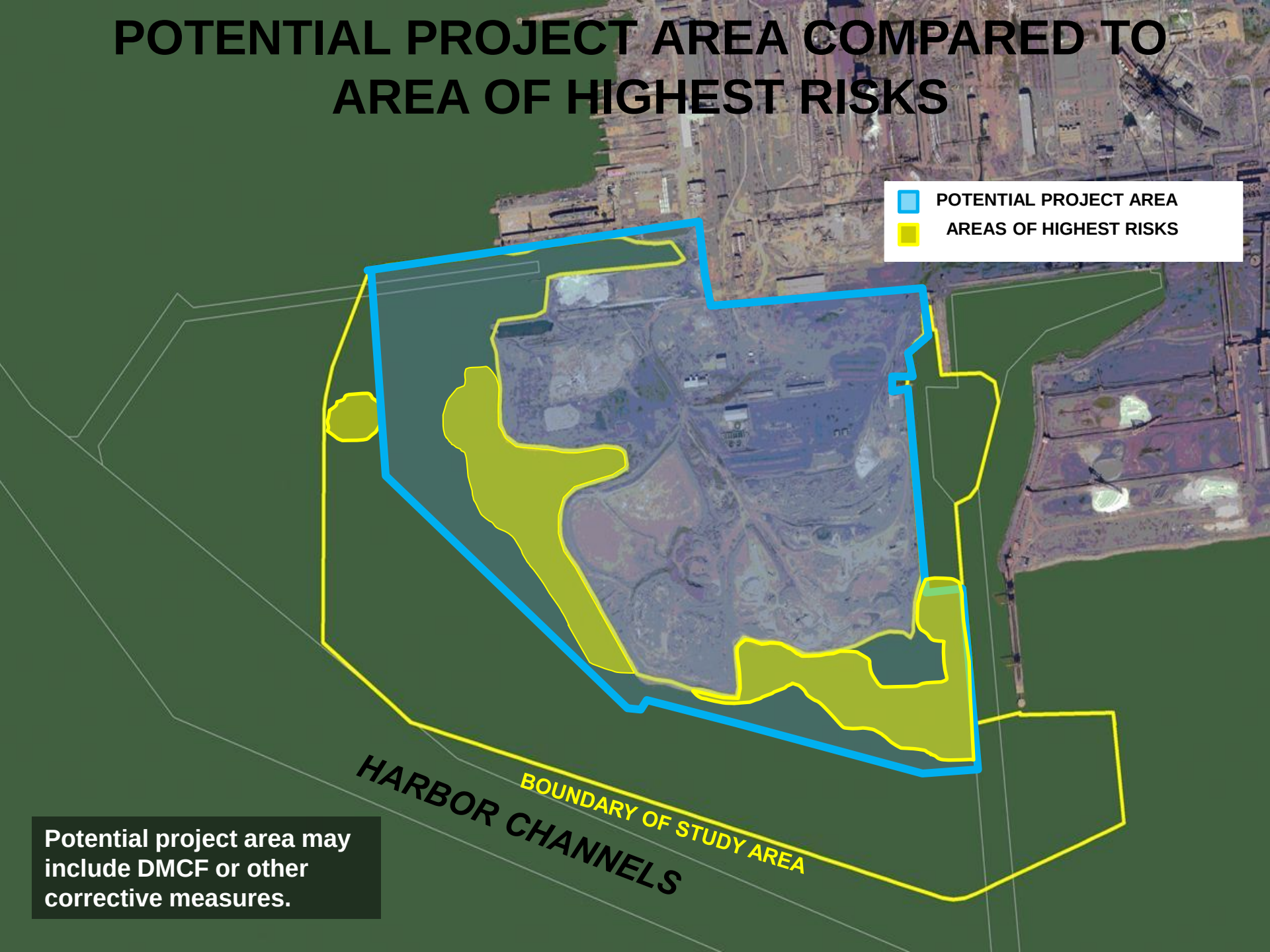
Areas of elevated risk extend beyond the area of highest risk.

AREA OF HIGHEST ECOLOGICAL RISKS



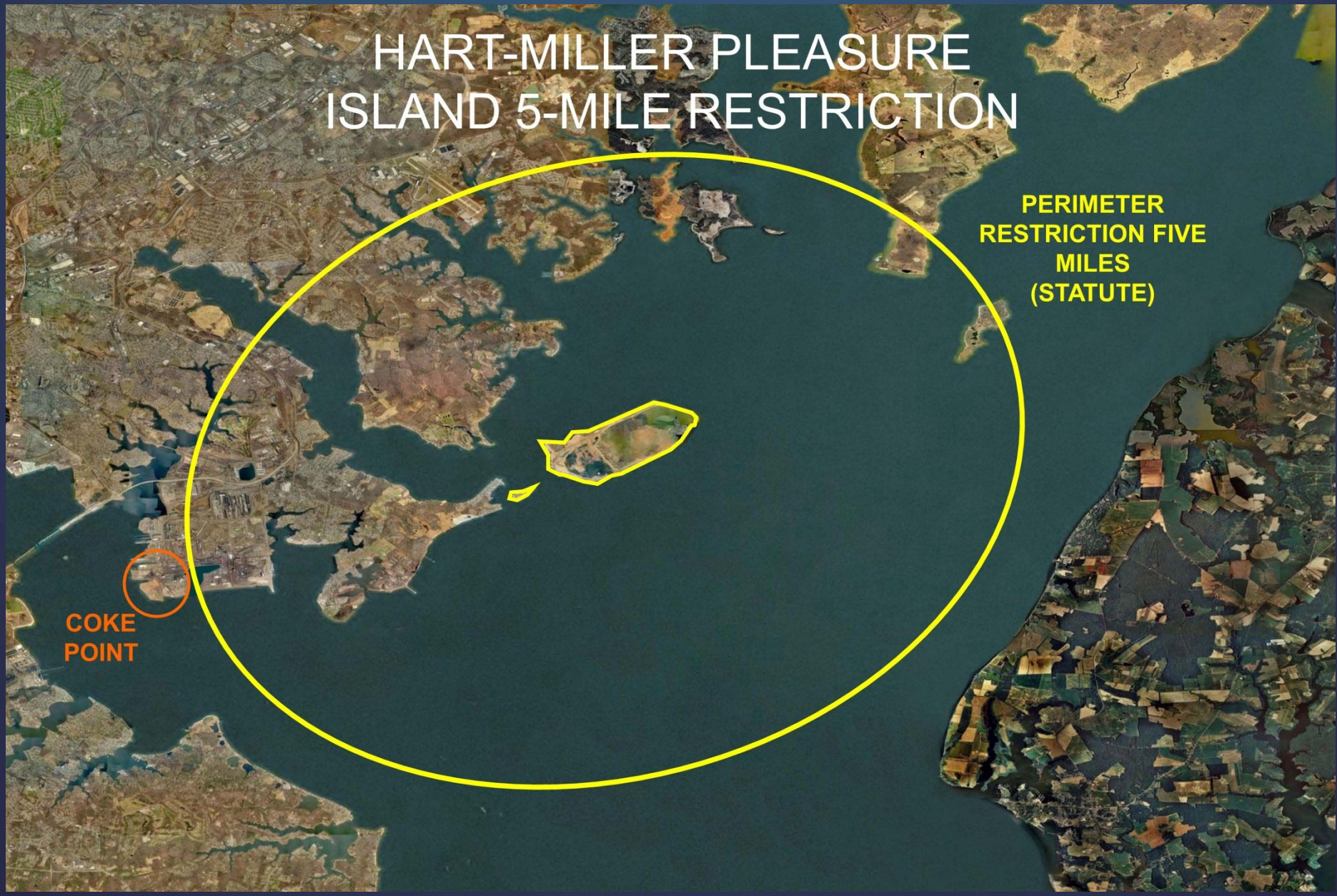
Areas of elevated risk extend beyond the area of highest risk.

POTENTIAL PROJECT AREA COMPARED TO AREA OF HIGHEST RISKS



Potential project area may include DMCF or other corrective measures.

QUESTIONS


HART-MILLER PLEASURE ISLAND 5-MILE RESTRICTION
PERIMETER RESTRICTION FIVE MILES (STATUTE)
COKE POINT