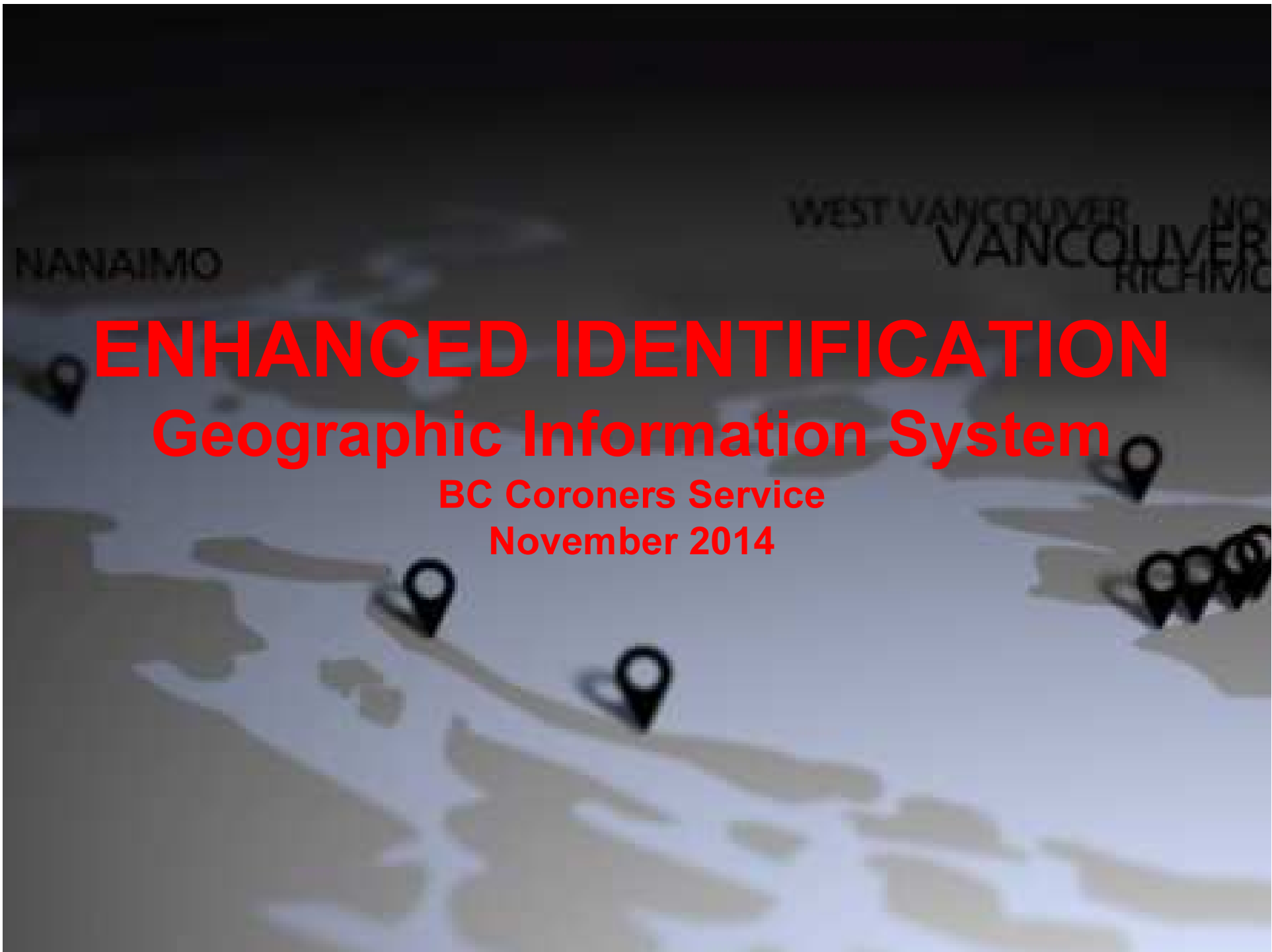


NANAIMO

WEST VANCOUVER
VANCOUVER
RICHMOND

ENHANCED IDENTIFICATION Geographic Information System

BC Coroners Service
November 2014



Overview

- Mandate
- Case Load
- Identification and Disaster Response Unit
- Enhanced Identification GIS Model
- Case Examples
- Results
- References



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BCCS Mandate

- Authority to investigate the circumstances surrounding all sudden and unexpected deaths in BC
- The coroner's service is responsible for identification of all human remains regardless of the cause of death
- Fact finding, not fault finding

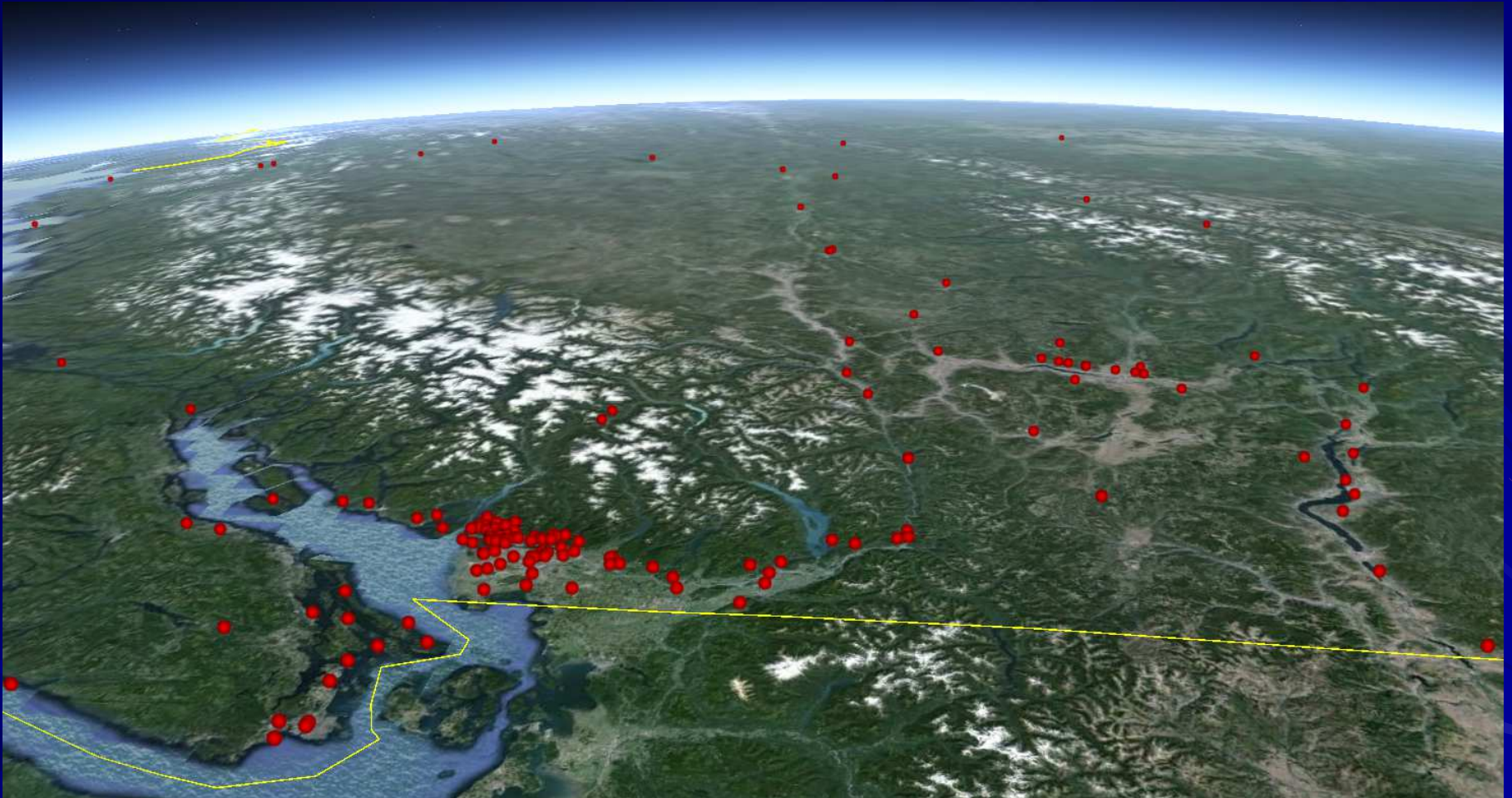


Case Load

- ~ 7000 deaths are reported to BCCS every year
- ~ 200 unidentified human remains are open in BC

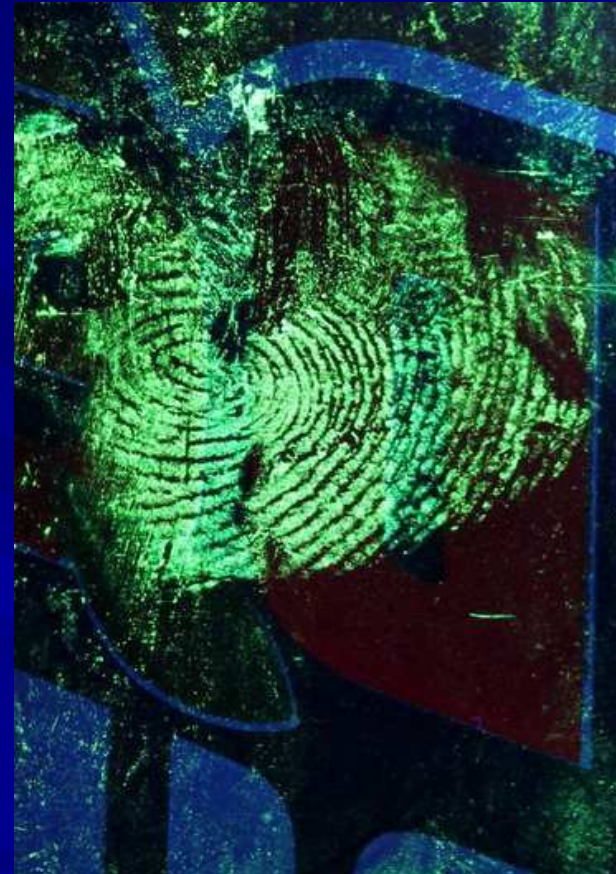


BCCS Case Load



Identification Methods

- Visual identification
- Fingerprints
- Medical history
- Odontology
- Radiography
- DNA analysis
- Spatial analysis
- Circumstantial evidence



Identification and Disaster Response Unit (IDRU)

- Established in March 2006
- Responsible for:
 - assisting all frontline coroners toward a timely identification
 - investigating all unidentified “cold cases”



Enhanced Identification GIS Model

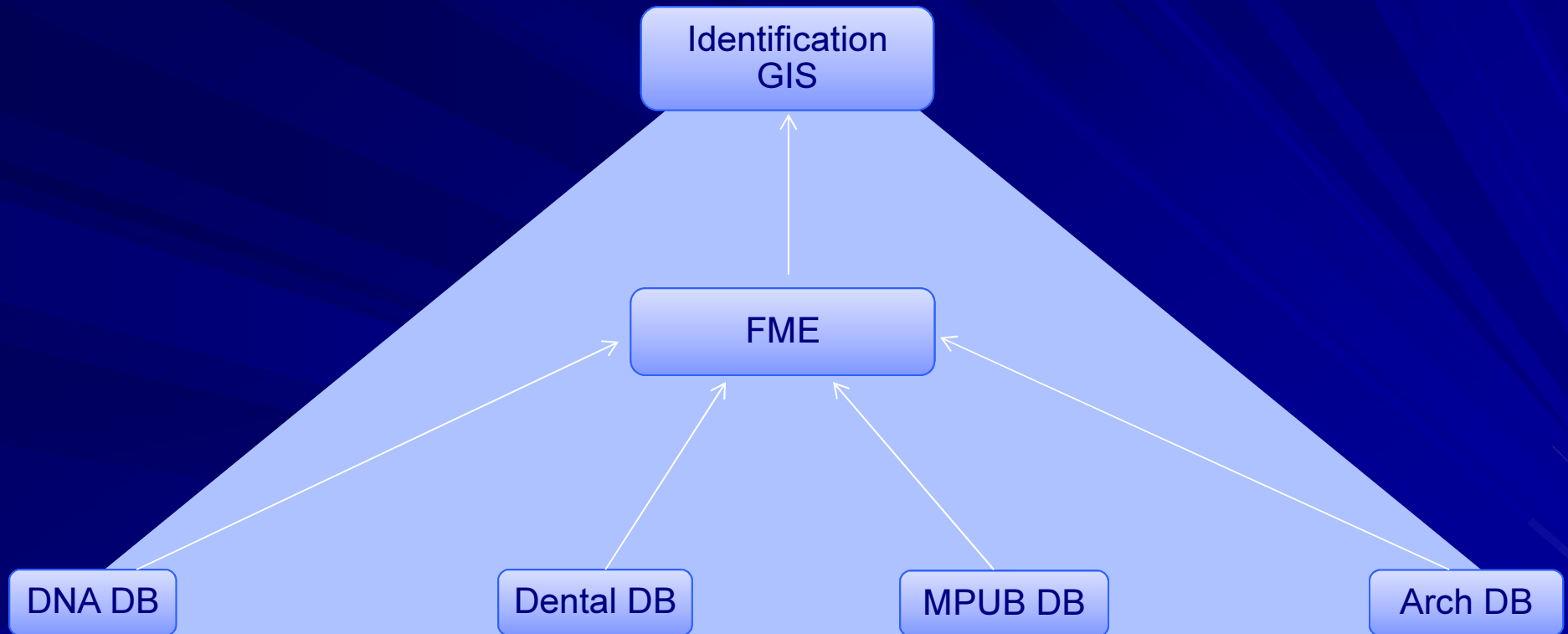
1. Uses data transformation software (FME) to extract forensic descriptors from 4 different provincial data banks into a centralized database
2. FME generates two master outputs:
 - ESRI Geodatabase
 - Google Earth KML
3. Enables spatial queries for case comparisons



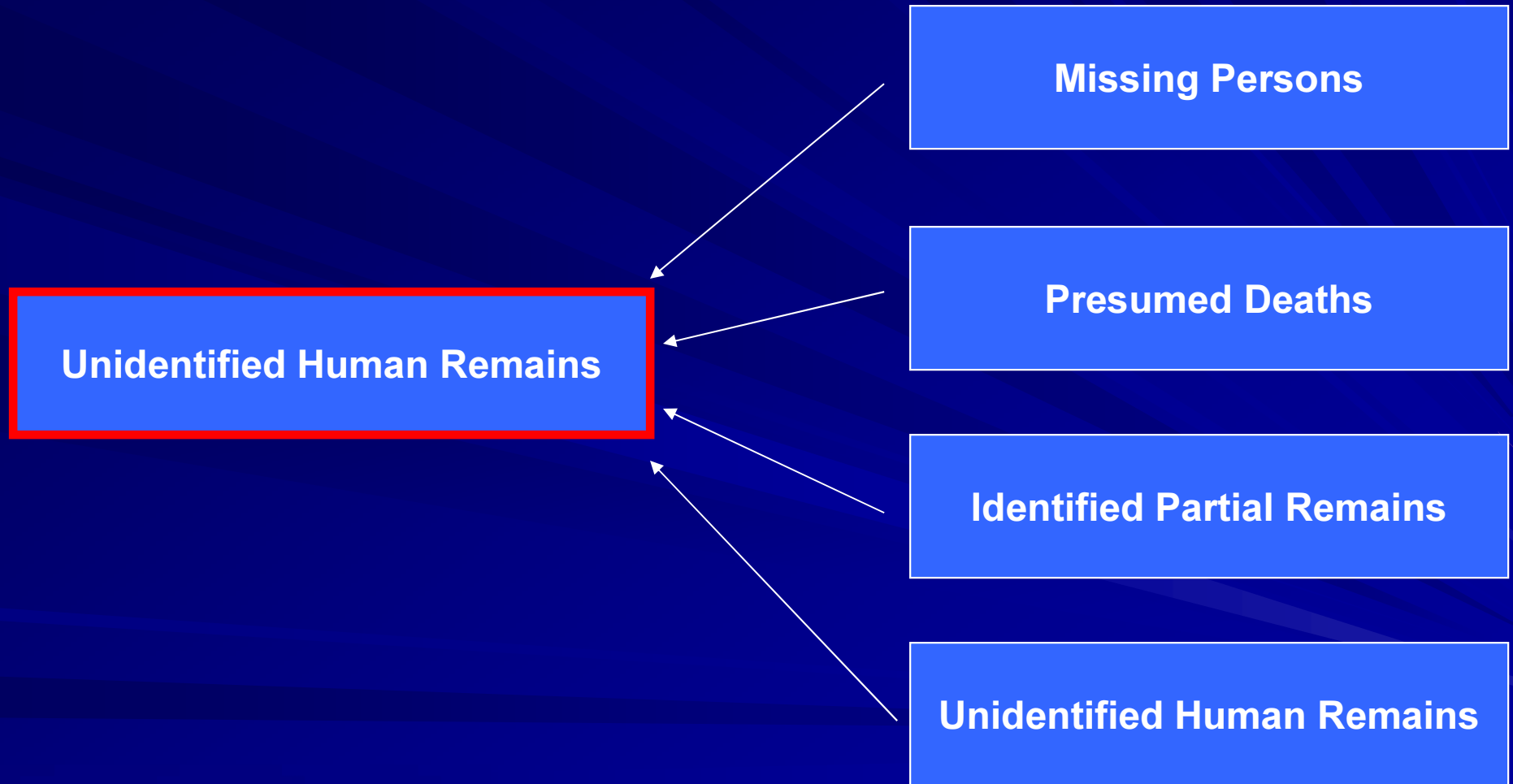
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Enhanced Identification GIS Model



Case Types



Establishing Relationships

Identifiers

Relationships

■ Visuals	→	1 to 1
■ X-Rays	→	1 to 1
<hr/>		
■ Fingerprints (FIS)	→	1 to Many
■ Descriptors (MPUB db)	→	1 to Many
■ Dental (Plass db)	→	1 to Many
■ DNA (DNA db)	→	1 to Many
■ Spatial (IDRU db)	→	1 to Many

Missing Persons Unidentified Bodies (MPUB) Database

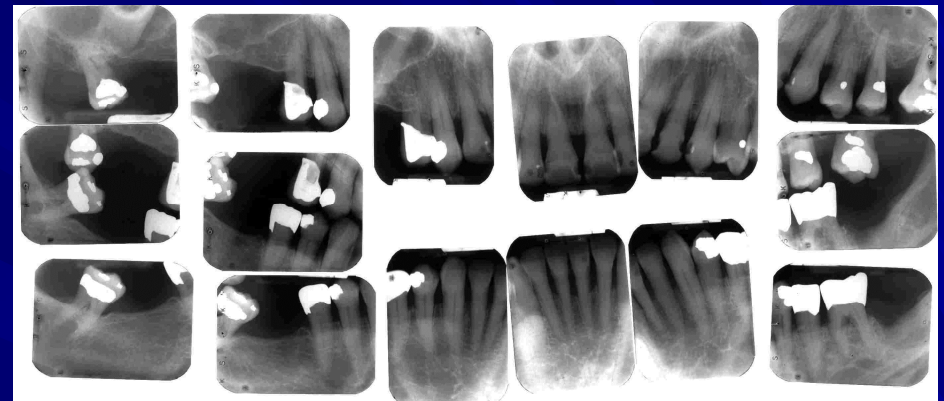
- Designed to perform global searches on missing person's using case descriptors
- Comparisons conducted by Data Analyst

The screenshot shows a Microsoft Access form titled "Missing Persons - Unidentified Bodies/Remains - Person Detail". The form is divided into several sections:

- MPUB/R ID #:** 20050001
- Date Entered:** 14 Nov 05
- Date:** 08 Oct 05
- Sex:** Male
- Age From:** 20
- Age To:** 50
- Height (Metric) Range:** From: 170 cm, To: 180 cm
- Height (Imperial) Range:** From: [blank], To: [blank]
- Weight (Metric) Range:** From: [blank], To: [blank]
- Weight (Imperial) Range:** From: [blank], To: [blank]
- Eyes (Colour):** [blank]
- Hair Colour:** [blank]
- Facial Hair:** Beard [checkbox], Sideburns [checkbox], Moustache [checkbox]
- Eyewear:** [blank]
- Hair Length:** [blank]
- Build:** [blank]
- Denition:** Mature upper teeth in good condition with several fillings
- Dental Chart:** [checkbox checked] Dental Records To: R. Wood
- Ethnicity (As Reported):** Caucasian
- Ethnicity (Anthropological):** [blank]
- Ethnicity (Standard):** Caucasian
- Probable/Possible Cause:** Undetermined, estimated date and time of death more than 1 year less than 4 years from time of discovery based on vest information.
- Fingerprints:** Collected [checkbox], Taken By: [blank], Submitted To: [blank]
- Reward Offered:** Amount: [blank]
- Administration:** VICLAS Book Submitted/Requested [checkbox], Submitted To CPIC [checkbox checked], VICLAS No: [blank], Submitted To NDC [checkbox checked], Identified [checkbox], Case Entry Complete [checkbox checked]
- Public Release of Information:** DO NOT PUBLISH [checkbox checked], Approvals: [blank], Release To Public Website [checkbox checked], Released On: 12-May-05, Submit For Translation [checkbox checked], Submitted On: 13-Apr-2006, Translation Received [checkbox checked], Received On: 21-Apr-2006

Dental Database

- Designed to compare antemortem dental charts against postmortem dental charts
- Police responsible for populating the missing persons index
- Maintained by the Bureau of Legal Dentistry



antemortem



postmortem

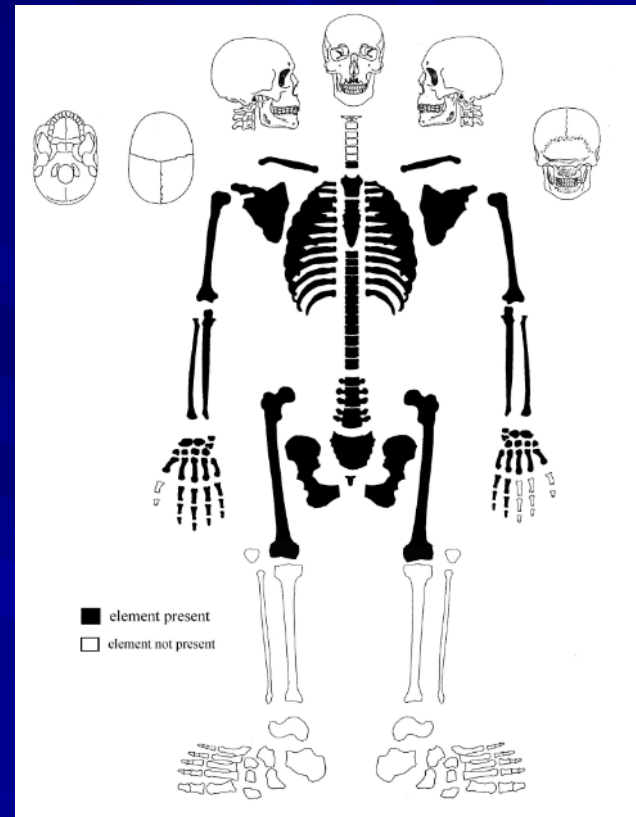
Anthropology Exam

Determines whether remains are:

1. Human vs non-human
2. Archaeological vs modern
3. Antemortem, perimortem and postmortem skeletal trauma

Provides enhanced descriptor profile, such as:

1. Age estimates,
2. Racial affinity,
3. Height estimates, etc.



DNA Database

The DNA database is populated with the following:

1. missing persons' profiles
2. missing persons' biological relatives' profiles
3. unidentified human remains' profiles
4. identified partial human remains' profiles
5. the missing, presumed dead profiles

Tentative ID made through databank then confirmed through analysis of lab reports by analyst

Exhibit Details

ID: BCIT 2006-D23-K1-1

Source:

Status: Known

Kit Used: Real Kit 2

Lab: Fooobar Labs

Additional Information: test data load

Categories for Exhibit

Category	Values
AMEL	XX
D13S317	14,13
D18S51	17,16
D21S11	32,28
D3S1358	17,15
D5S818	12,12
D7S820	11,10
D8S1179	14,14
FGA	23,22

Analysis

Exhibit	S	D	M	D3S1358	FGA	AMEL	D8S1179	D21S11	D18S51	D5S818	D13S317	D7S820	vWA
BCIT 20...	0	10	0	15,17	22,23	XX	14,14	28,32	16,17	12,12	13,14	10,11	15,17
BCIT 20...	7	2	0	15,15	22,23	XY	14,14	27,31.2	16,16	12,13	11,13	10,12	17,19
BCIT 20...	5	5	0	15,17	22,27	XX	14,14	31.2,32	16,17	12,12	11,14	11,12	15,19
BCIT 20...	3	6	0	15,17	23,27	XX	14,14	28,31.2	16,17	12,13	13,14	10,11	16,19

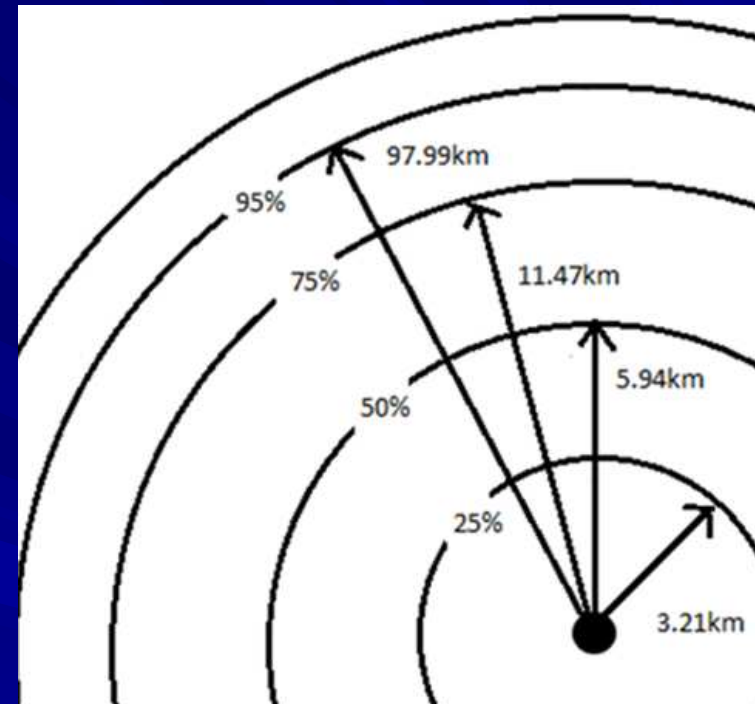
GPS Data Collection

- GPS coordinates are recorded for all cases where a scene is visited



Spatial Profile for Suicide Deaths

- In BC, there were 149 bridge related suicides that occurred in between 2006-2012³
- 75% of jumpers travelled 11.47 km from their home address to a nearby bridge to commit suicide



UHR Descriptor Profile

- Unique features
- Personal effects
- Fingerprints record
- Full body radiographs
- Facial approximation
- Dental Profile
- Anthropological profile
- Skeletal inventory
- DNA profile
- Spatial profile

UHR Descriptor Profile

IDRU Enhanced GIS

Spatial: GPS, address, etc.

Temporal: last seen date, found date, etc.

Circumstantial: clothing, tattoos, etc.

Racial Affinity: Caucasoid, Mongoloid, etc.

Biological: height, weight, age, etc.

Genetic: Y-STR, mtDNA, nDNA, etc.

BC's Found Feet

- Between 2007-2012, 9 feet washed up on BC's shores
- 7 of 9 have been positively identified



Unidentified Foot Descriptor Profile

IDRU Enhanced GIS

Spatial: N49.1 W123.7; Gabriola Island

Temporal: found in 2007

Circumstantial: right white shoe; DD = 2004

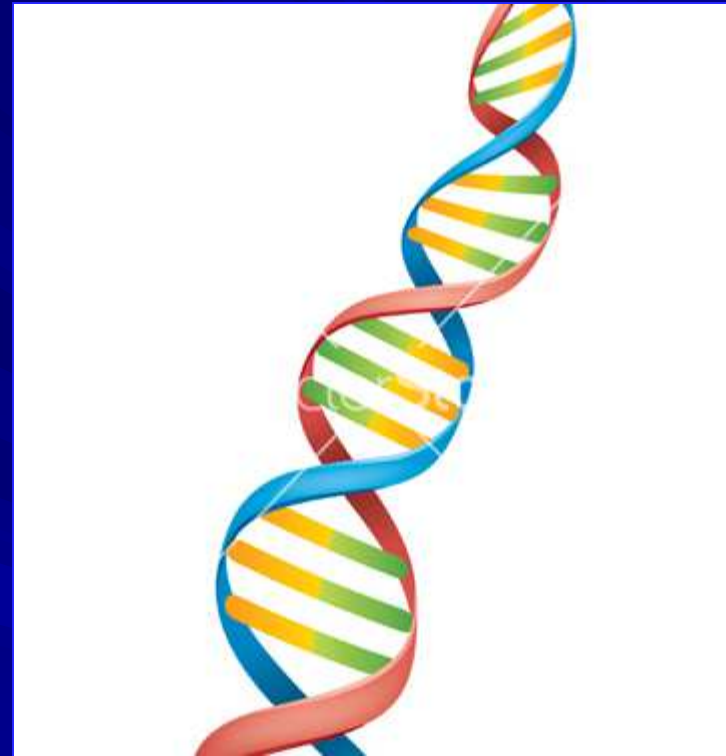
Racial Affinity: unknown

Biological: height: 5'7"-6'1"; 17-28 y/o

Genetic: full nuclear DNA profile

DNA Analysis

- DNA Analysis Types:
 - Kinship Analysis
 - Paternal Analysis
 - Intelligence searches
 - Direct DNA comparisons
- Sample types include:
 - FTA cards
 - Buccal swabs
 - Bone
 - Soft tissue
 - Personal effects
- Results:
 - Direct hits
 - Cold hits
 - Likelihood ratio









Missing Person Cases



Missing Person Cases

- Last year there were ~19,000 missing person cases opened in BC
- 30-50 cases remain unresolved by years end

<p>Missing Adult</p>  <p>D'ARCY, Delvin James Born: 1958 Missing Since: February 13, 2013 Missing From : Fort Fraser, BC</p>	<p>Missing Adult</p>  <p>DAWSON, Sharon Gavlé Born: 1949 Missing Since: December 25, 2010 Missing From : Qualicum Beach, BC</p>
<p>Missing Adult</p>  <p>DERRICK, Lana Patricia Born: 1976 Missing Since: October 7, 1995 Missing From : Terrace, BC</p>	<p>Missing Adult</p>  <p>DESMEULES, Ronald Orton Born: 1962 Missing Since: September 14, 1995 Missing From : Squamish, BC</p>
<p>Missing Adult</p>  <p>DOBROSKAY, Emerson Grant Born: 1967 Missing Since: October 28, 1988 Missing From : University of British Columbia, Vancouver, BC</p>	<p>Missing Adult</p>  <p>FILLIPOFF, Emma Alexandra Born: 1986 Missing Since: November 28, 2012 Missing From : Victoria, BC</p>

www.canadasmissing.ca

Government of Canada / Gouvernement du Canada | Canada.gc.ca | Services | Departments | Français

Canada's Missing

Canada







Search Current Cases | Reporting | Specialized Services | Publications | Partnerships

Home » Search » Search Results

Search Results: 44 Persons matched your search criteria

Sort By: Surname | Order By: Ascending (A-Z)

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[Previous](#) | [1](#) | [2](#)

Unidentified Remains	
 <p>No photo on file Aucune photo sur dossier</p>	<p>Discovered On: May 3, 1970</p> <p>Est. Age: 30 to 40</p> <p>Discovered At: Coquitlam, BC</p>
	<p>Discovered On: July 2, 1998</p> <p>Est. Age: 35 to 50</p> <p>Discovered At: Port Coquitlam, BC</p>
	<p>Discovered On: June 8, 2008</p> <p>Est. Age: 45 to 55</p> <p>Discovered At: Richmond, BC</p>
Unidentified Remains	
	<p>Discovered On: December 3, 1998</p> <p>Est. Age: 25 to 40</p> <p>Discovered At: Sooke, BC</p>
	<p>Discovered On: April 8, 1997</p> <p>Est. Age: 21 to 29</p> <p>Discovered At: Burrard Inlet, Vancouver, BC</p>
	<p>Discovered On: January 29, 2007</p> <p>Est. Age: 27 to 43</p> <p>Discovered At: Agassiz, BC</p>

Results

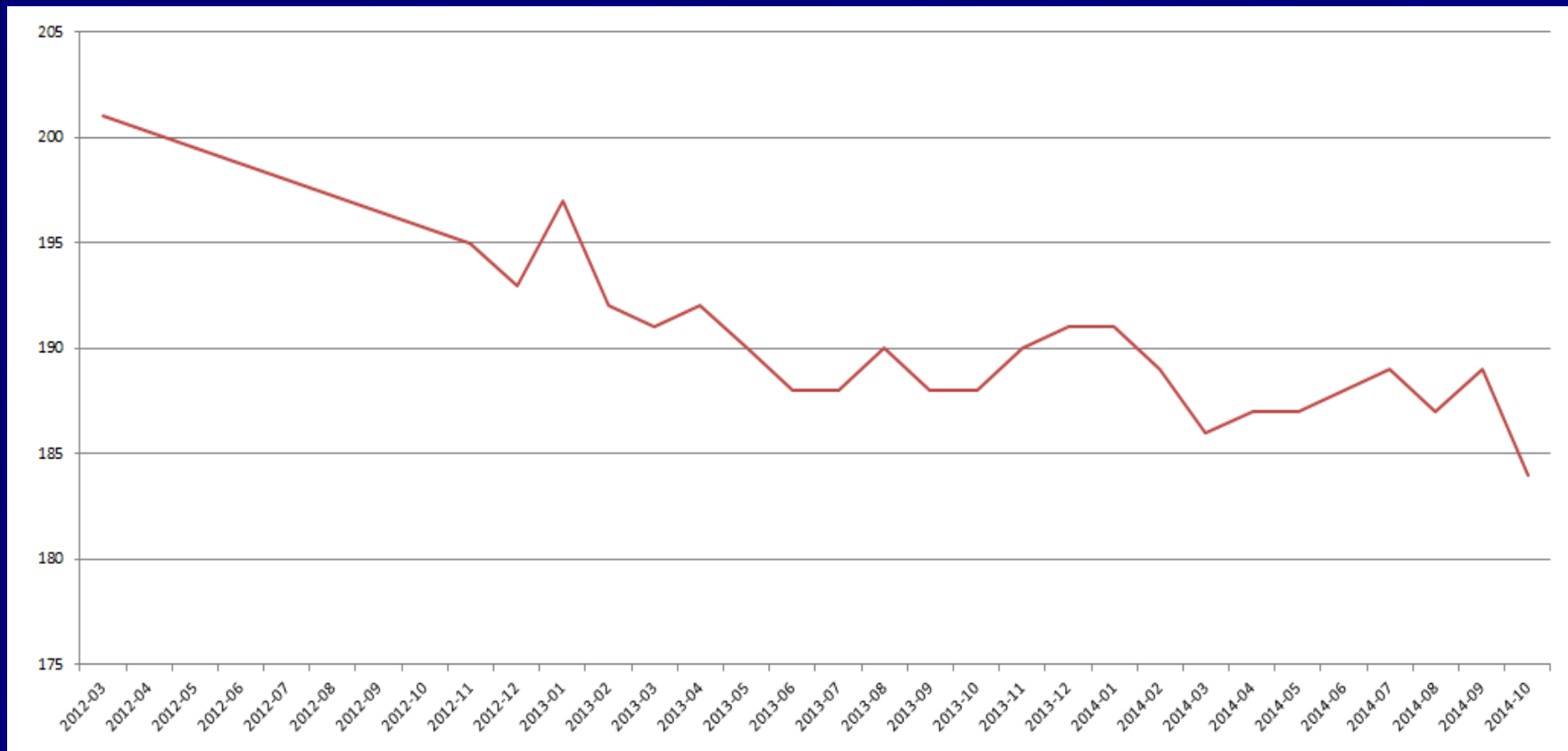
- The unidentified human remains inventory has decreased by 6% rate since 2012
- The model was recently featured on Global TV's 16x9 documentary series, Directions Magazine, and the Vancouver Sun



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UHR Cases



IDRU

- The IDRU is currently the only Identification Unit in North America that has a:
 - Dental Database
 - DNA Database
 - GIS Database
 - Skeletal Inventory

References

1. Canada's missing. (2014, October 16). Retrieved on November 13, 2014, from <http://www.canadasmissing.ca/>
2. Dead or alive. (2014, October 18). Retrieved on November 13, 2014, from <http://globalnews.ca/video/1620148/full-story-dead-or-alive/>
3. King, J. (2013). *Project Rescue: Analyzing Suicide Deaths from Bridges in BC*. BC Coroners Service.

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Coroners Service