

Potential Non-Point Source Impact: Comal River & Animal Waste

According to the Humane Society of the United States (HSUS):

- There are 171.1 million owned cats & dogs in the US, approximately 77.5 million dogs & 93.6 million cats.
- 69% of US households own at least one dog
- 89% of US households own one or more cats

Comal



Texas Estimates of the Total Populations of Counties and Cities: (Office of State Demographer)

- January 1, 2009, Comal County; Population Estimate:
112,190
- January 1, 2009, City of New Braunfels; Population Estimate:
58,575
- January 1, 2010, City of New Braunfels estimated population:
60,465 (Building permits for SFR)

How many cats & dogs are there?



**American Veterinary Medical Association:
U.S. pet ownership estimates based on population;
Comal County (112,190)**

Type of Pet	Number of pet owning households	Pet Population
dogs	16,694	28,362
cats	14,540	31,997

Comal County estimated number of pets based on a population: **60,359**

**American Veterinary Medical Association:
U.S. pet ownership estimates based on population;
City of New Braunfels (60,000)**

Type of Pet	Number of pet owning households	Pet Population
dogs	8,928	15,168
cats	7,776	17,112

City of New Braunfels estimated number of pets based on a population: **32,280**

City of New Braunfels: Animal Control Data

Time	Calls for Service	Animals Impoundments
2007	5,123	3,430
2008	5,994	3,861
2009	5,742	3,055
Totals	16,859	10,346

Nonpoint Source Pollution: Pet Droppings

Pet droppings have been found to be important contributors of NPS pollution in estuaries and bays where there are high populations of dogs. Eliminating or significantly reducing the quantity of pet droppings washed into storm drains and hence into surface waters can improve the quality of urban runoff.

- According to van der Wel (1995) a single gram of dog feces can contain 23 million fecal coliform bacteria. Dogs can also be significant hosts of both *Giardia* and *Salmonella* (Pitt, 1998). It was also noted in a 1982 study of Baltimore, Maryland catchments that dog feces were the single greatest contributor of fecal coliform and fecal strep bacteria (Lim and Olivieri, 1982)
- Bacterial source tracking studies in a watershed in the Seattle, Washington area also found that nearly 20% of the bacteria isolates that could be matched with host animals were matched with dogs.
- Runoff containing pet droppings has been found to be responsible for numerous shellfish bed closures in Massachusetts (George Heufelder, personal communication, 1992; Nassau-Suffolk Regional Planning Board, 1978).
- Genetic studies by Alderiso et al. (1996) and Trial et al. (1993) both concluded that 95 percent of the fecal coliform found in urban storm water was of non-human origin.

Pollution Prevention: Animal Waste Awareness

Animal waste collection as a pollution source control involves using a combination of educational outreach and enforcement to encourage residents to clean up after their pets. Successful programs have included:

- Animal waste educational awareness PSA programs,
- Introduction of signage at site specific locations,
- Introduction of pet waste control ordinances, and
- Designing parks or portions of parks established specifically for urban dog owners. Providing vegetative buffer zones, considering drainage design, introducing doggy loos, pooch patch, & long grass principle design considerations, etc.

The cost of animal waste collection programs will vary depending on the intensity of the effort and the paths chosen to control pet waste. The most popular way is through an ordinance, but managers must consider the cost of enforcement, including staff and equipment requirements.

City of New Braunfels Ordinance

Chapter 6; Section 6-80: Removal of animal waste.

The owner of every animal shall be responsible for the removal of any excreta deposited by his animal(s) on public walks, recreation areas, or private property including the property of the owner. (Code 1961, § 3-19; Ord. No. 2006-51, § VI, 6-12-06)

NPS Pollution ordinances regulating activities (livestock) in a geographic area should consider the implications of:

- **Texas Local Government Code, SEC. 43.002. CONTINUATION OF LAND USE.**
 - (a) A municipality may not, after annexing an area, prohibit a person from:
 - (1) continuing to use land in the area in the manner in which the land was being used on the date the annexation proceedings were instituted if the land use was legal at that time; or
 - (2) beginning to use land in the area in the manner that was planned for the land before the 90th day before the effective date of the annexation.

Exceptions:

This section does not prohibit a municipality from imposing:

- a regulation relating to preventing imminent destruction of property or injury to persons;
- a regulation relating to public nuisances;
- a regulation relating to flood control.

Another statute to consider is the Texas Agricultural Code, Chapter 251:

- Sec. 251.004. NUISANCE ACTIONS.
(a) No nuisance action may be brought against an agricultural operation that has lawfully been in operation for one year or more prior to the date on which the action is brought, if the conditions or circumstances complained of as constituting the basis for the nuisance action have existed substantially unchanged since the established date of operation.

What is the Primary Source of Fecal Pollution?

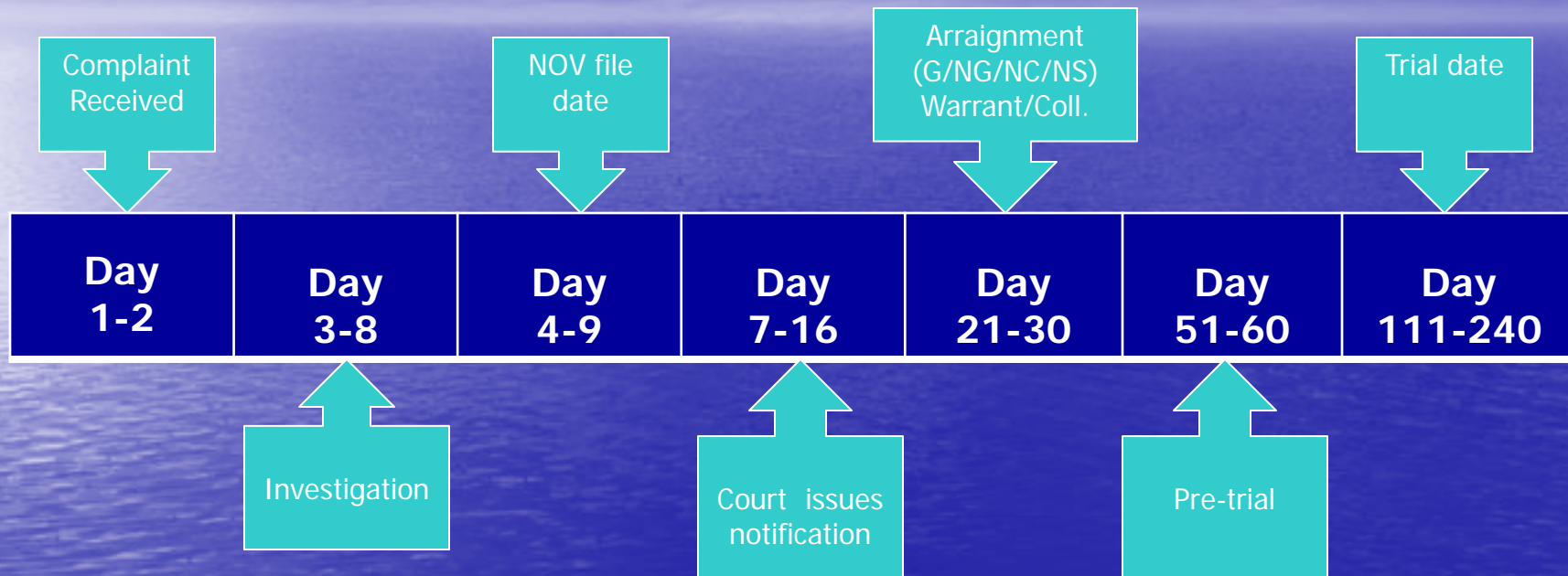
Decision Tree

- Is the problem of pollution adequately defined?
- Has an adequate sanitary survey been conducted?
- How many sources of the pollution were identified?
- Is the study area of manageable size?
- What is the desired level of discrimination of the sources of pollution?

Solution: Microbial Source Tracking

Typical Prosecution Time Line

Standard Complaint



•Assumes prosecutor is satisfied with evidence, valid name is secured with confirmed valid address, no change in material facts & D.L. # is present for warrant.

•Case investigation: Evidence is collected & documented, ownership & physical location determined, civil & criminal court records reviewed, SOS & State Comp records reviewed & documented, CAD, NBU records reviewed.

Texas Water Code; Chapter 7: Enforcement

Sec. 7.147. UNAUTHORIZED DISCHARGE.

- (a) A person commits an offense if the person discharges or allows the discharge of any **waste** or **pollutant** into any water in the state that causes or threatens to cause water pollution unless the waste or pollutant:
- (1) is discharged in strict compliance with all required permits or with a valid and currently effective order issued or rule adopted by the appropriate regulatory agency; or
 - (2) consists of used oil and the concentration of used oil in the waste stream resulting from the discharge as it enters water in the state is less than 15 parts per million following the discharge and the person is authorized to discharge storm water under a general permit issued under Section 26.040.
 - (3) **An offense under this section may be prosecuted without alleging or proving any culpable mental state.**

Texas Water Code

- **"Pollution"** means the alteration of the physical, thermal, chemical, or biological quality of, or the contamination of, any water in the state that renders the water harmful, detrimental, or injurious to humans, animal life, vegetation, or property or to public health, safety, or welfare, or **impairs the usefulness or the public enjoyment of the water for any lawful or reasonable purpose.**
- **"Pollutant"** means dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, filter backwash, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial, municipal, and **agricultural waste discharged into any water in the state.**

Bacteriological River Sampling Data: Comal River

Sample Period	Geometric Mean	Bacterium
1996	133	Fecal Coliform
1997	96	Fecal Coliform
* 1998	211	Fecal Coliform
1999	91	Fecal Coliform/E.coli
2000	107	E.coli
2001	67	E.coli
2002	61	E.coli
2003	52	E.coli
2004	52	E.coli

*** 1998:**

- NBU sewer leak into Landa Lake in April.
- NBU sewer line rupture in July into Dry Comal. City, LCRA, GBRA, NBU & TNRCC split samples & review protocols due to variable elevated levels.
- Major Flood in October. River is temporarily closed; bacterial levels return to 109 in December.

Comal River Testing Results

GBRA DATA (Monthly Sample Grab)

Time Period 12/05 – 12/09 (49 samples)	# of elevated samples (E. coli)
2005	0
2006	1
2007	0
2008	2 samples : 03/10/2008-(Rain) 09/08/2008-(Rain)
2009	3 samples: 07/07 (Rain) 10/07 (Rain) 12/02 (Rain)