



East Norwalk Blue
The Clean Rivers Project 2, A survey of Chlorantraniliprole Levels
in several waterways in Fairfield County

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Grayson Schottmuller and Zoe Guerrero taking surface samples for Clean Rivers Project.

Funded by the Sexauer Foundation, the Surfriders Foundation, East Norwalk Blue, The Norwalk River Watershed Association, The Shack Sackler Foundation, and Mr. Jamie Walsh

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Abstract:

East Norwalk Blue (ENB), a 501(c) (3) nonprofit initiated a surface water survey, Clean Rivers 2, June 2025, during the Connecticut (CT) growing season (May through September) to determine if chlorantraniliprole, *i.e.*, acelepryn (used to eliminate grubs in turf) is now being employed for grub control on ten local golf courses (Figure 1). Results of the survey by ENB found acelepryn present in trace quantities in the surface waters at all ten golf course locations that were sampled. Observed acelepryn concentrations were well below the EPA established toxic (39.9 ppb, parts per billion) and long-term chronic (24.0 ppb) benchmarks for oysters (USEPA 2008). The presence of acelepryn in the waterways even during a period of near drought conditions (June through August 2025) indicates the pesticide has an affinity for adjacent natural waterways. This may ultimately have negative impacts on aquatic and marine animals as acelepryn’s use increases as imidacloprid is gradually withdrawn from all turf applications by 10/1/27 (CT State Legislature Bill SB 9, 2025). In addition, EPA benchmarks for oysters and oyster larvae do not appear to be fully grounded in scientific research which may lead to future adjustments as use of the product increases (USEPA 2008).

Introduction:

In a previous study conducted by ENB the same ten local golf courses and their adjacent waterways (Figure1) were analyzed by ENB (Harris *et al.*, 2024) during Connecticut’s seasonal growing period to ascertain if widespread use of neonicotinoids, *i.e.*, imidacloprid, could be infiltrating into adjacent waterways and exceeding EPA benchmarks for acute and long-term chronic values for aquatic invertebrates of 0.385 (parts per billion) ppb and 0.010 ppb respectively (USEPA 2024). Of the 56 surface water samples submitted for analysis to the Center for Environmental Sciences and Engineering (CESE) at the University of Connecticut (UConn), 30 samples (54%) exceeded the long-term chronic benchmark of 0.010 ug/L for aquatic insects (Presley, S.J., 2025).

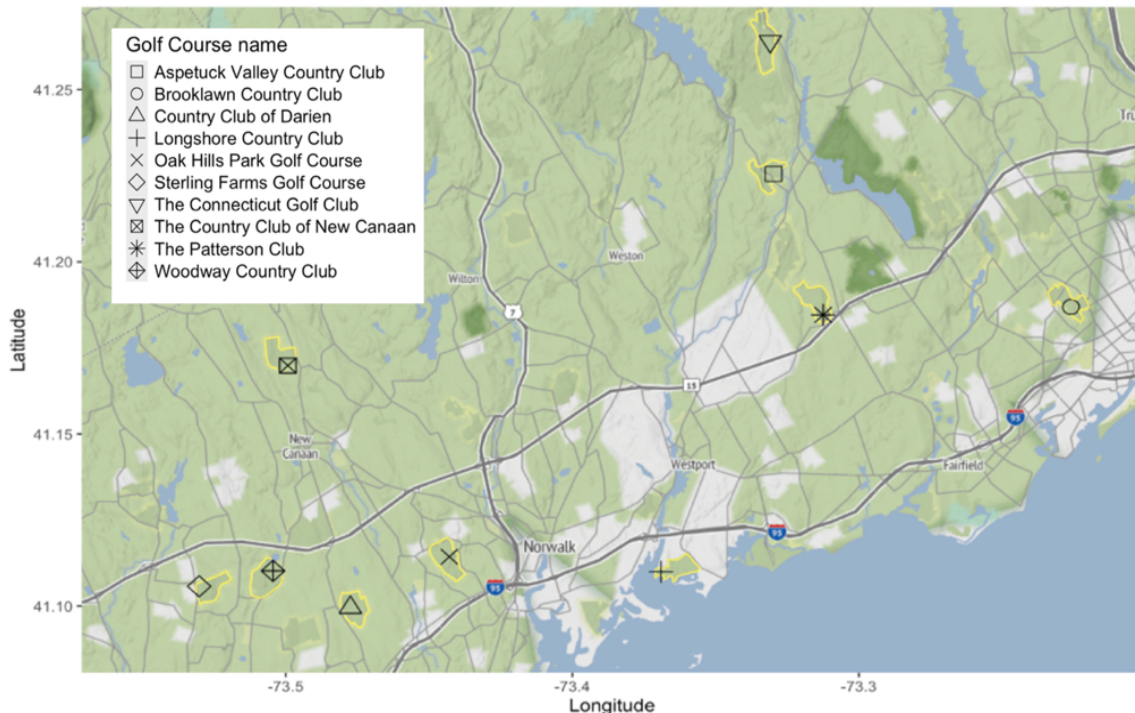


Figure 1. Fairfield County map showing the location of ten golf courses used in ENB’s analysis of acelepryn to kill grubs in turf.

Chlorantraniliprole, brand name acelepryn, is now being promoted by Syngenta, FMC, and others as a safer and more effective alternative to imidacloprid although it is noted by the manufacturer to be toxic to aquatic invertebrates, oysters, and shrimp on the product's directions for use (Appendix 2, Figure Ap2-1). Although the EPA has established toxic (39.9 ppb, parts per billion) and long-term chronic (24.0 ppb) benchmarks (USEPA 2008) for oysters, there is limited scientific research available to support these values except for a formula extrapolated by EPA from similar benchmarks assigned to mysid shrimp (Appendix 2, Figure Ap2-2). The lifestyles of mysid shrimp (crustaceans) and oysters (mollusks) are quite different. Oysters are filter feeders that can filter over 100 gallons of water a day, as well as bioaccumulate some products that may be present in the water column (Bayne, B.L., 2017). Acelepryn appears to be gaining acceptance with turf managers as the use of imidacloprid is scheduled to be phased out by 10/1/27, according to CT SB 9. It will be difficult to gauge any immediate environmental harm to aquatic invertebrates and shellfish as the pesticide will not be fully established until existing stocks of imidacloprid are used up during the intervening 26 months. Acelepryn has a high affinity for water and is easily transferable from application sites to adjacent waterways (Appendix 2, Figure Ap2-1, Figure Ap2-4). This is of concern to the Connecticut Department of Agriculture/Bureau of Agriculture (DA/BA) because Long Island Sound presently supports a 30-million-dollar shellfish industry (Appendix 2, Figure Ap2-3). There appears to be little scientific research available to validate EPA-assigned benchmarks for oysters, and ENB found no current research in the literature concerning the exposure of oyster larvae to acelepryn. Partially based on the EPA's limited research on acelepryn regarding oysters and the specific warning about the pesticide's toxicity to "aquatic invertebrates, oysters and shrimp" on the acelepryn labels (Appendix 2, Figure Ap 2-1), the New York Department of Environmental Conservation (NYDEC) banned sales of acelepryn in Suffolk, Nassau, Kings, and Queens counties. This action was not based on additional research by NYDEC or other independent laboratories (Appendix 2, Figure Ap2-1), and the pesticide is still legally available for use only on Long Island golf courses under very controlled conditions if applied by licensed landscapers (Appendix 2, Figure Ap2-4). The NYDEP and all four counties have an additional overriding concern about limiting all pesticides to help maintain the quality of two aquifers, which provide Long Island's only source of drinking water.

Methods:

ENB research on waterways near ten golf courses in Fairfield County (Table 1, Appendix 1-Table Ap1-1 to Table Ap1-10) consisted of comparing acelepryn concentrations from upstream surface waters to golf courses to acelepryn concentrations found in downstream (discharging) waters. An increase in the concentration of acelepryn found in downstream waters could point to the probable use of the pesticide on the property by the course management. A total of 46 water samples (Appendix 1, Table Ap1-11) were collected by ENB according to its standard operating procedures (SOPs, Appendix 3) and forwarded by UPS overnight to the Center for Environmental Sciences and Engineering (CESE) at the University of Connecticut (UCONN) in Styrofoam containers cooled with ice packs. Sampling from surface waters began on 6/24/25 and was concluded on 7/24/25 to coincide with the CT growing period (May to September). Sampling details, dates, times, GPS coordinates, and site photographs were recorded by ENB in accordance with its SOP (Appendix 3), which was sent to CESE to comply with the information required by the CESE chain of custody (Appendix 3, Figure Ap3-4). Pre-cleaned High-Density Polyethylene (HDPE) 250 mL sample collection bottles were provided by CESE. Samples were collected from surface waters

using specially designed stainless-steel fixtures by ENB to avoid extraneous contamination by plastics (Appendix 3, Figure Ap3-2, Figure Ap3-3). Duplicate samples and field trip blanks were collected daily to meet the ENB SOP requirements for quality assurance measures (Appendix 3, Figure Ap3-2, and Figure Ap3-3).

Results:

Evidence of possible acelepryn use on golf course properties was observed in 10 streams adjacent to and serving the properties (Table 1, Appendix 1, Figure Ap1-1 through Figure Ap1-10, and Table Ap1-11). All ten locations showed some evidence that acelepryn was present in a waterway near the properties and possibly indicates its use on the premises. However, there were no sites identified where acelepryn concentrations exceeded the EPA’s benchmarks for long-term chronic or acute levels for oysters on the ten properties (Appendix 1, Figure Ap1-11).

Table 1. Site location, sample collection date, and concentrations of acelepryn found in natural surface waters upstream and downstream at ten golf course properties in Fairfield County.

| Location | Survey Date | Acelepryn (ug/L) in water upstream | Acelepryn (ug/L) in water downstream | Delta (+/-) ug/L | Possible use on the property | Detail in Figure |
|------------------------------|-------------|---|--------------------------------------|---------------------|------------------------------|------------------|
| Darien Golf Course | 6/24/2025 | Site 1 (0.059) Site 2 (0.058) | Site 3 (1.610) Site 3 (1.610) | + 0.551 + 0.552 | Probable | Ap1-1 |
| New Canaan Golf Course | 6/3/2025 | Site 1 (0.066) | Site 3 (0.549) | + 0.483 | Probable | Ap1-2 |
| Aspetuck Valley Country Club | 7/26/2025 | Sites 1, 2, 3 Aspetuck River (ND) | Site 4 (0.287) | ≥+ 0.287 | Probable | Ap1-5 |
| Patterson Club Golf Course | 7/1/2025 | Site 1 (ND) | Site 6 (0.307) | ≥+ 0.307 | Probable | Ap1-6 |
| The Connecticut Golf Club | 7/11/2025 | Site 1 (ND) Site 2 (0.020) | Site 3 (0.070) | ≥+ 0.070 + 0.050 | Probable | Ap1-8 |
| Brooklawn Country Club | 7/13/2025 | Site 1 (0.043) | Site 2 (0.266) Site 3 (0.209) | + 0.223 + 0.166 | Probable | Ap1-7 |
| Sterling Golf Course | 6/25/2025 | Site 1 (ND) | Site 3 (0.044) | ≥+ 0.044 | Probable | Ap1-9 |
| Longshore Country Club | 7/22/2025 | Site 5 (ND) | Site 3 (.105) | ≥+0.105 | Probable | Ap1-10 |
| Oak Hills Golf Course | 6/25/2025 | Site 1 (0.460) | Site 2 (0.125) | -0.335 | Possible | Ap1-3 |
| Woodway Golf Course | 6/24/2025 | Site 1 (0.058) Site 2 (0.046) | Site 3 (0.033) Site 3 (0.033) | - 0.025 - 0.013 | Possible | Ap1-4 |

*ND = not detected

Discussion and Conclusions:

Results obtained by ENB indicate widespread light contamination from acelepryn as observed in most of the subject waterways flowing adjacent to the golf courses (Table 1, Appendix 1, Figure Ap1-1 through Figure Ap1-11). Although none of the 46 surface water samples analyzed by CESE exceeded EPA's acute and long-term acelepryn benchmarks for oysters, thirty samples (65%) of those measured exceeded CESE's analytical limit of detection ($ND < 0.10$ ppb) (Furlong *et al.*, 2001; Appendix 1, Table Ap1-11). Acelepryn is being advertised as a viable and generally less toxic replacement for imidacloprid by Syngenta, FMC, and DuPont, with the proven benefit of being more effective in eliminating grub worms in turf. ENB's survey during the 2025 growing season occurred early in the transition period to acelepryn (6/3/25 -7/22/25), and turf managers may still be utilizing their existing inventories of imidacloprid well into the 26 months before the deadline imposed by SB 9. ENB has created a baseline for acelepryn for comparison in surveys to be conducted in future years (Table 1, Appendix 1, Table Ap1-1 to Table Ap1-10).

EPA established benchmarks (Appendix 2, Figure Ap2-1) for long-term chronic and acute levels for oysters, which are not fully supported by additional scientific research or the unique biology of the oyster as a filter feeder. The USEPA values for oysters are based on an existing EPA benchmark for mysid shrimp, which is subjected by EPA to a mathematical formula (EPA 2008). More recent scientific papers confirming the EPA Benchmarks levels were found by ENB (USEPA 2019, USEPA 2020, USEPA 2024). There appears to be little, however, if any, active research relating to the effect of acelepryn on oysters or their larvae, which is unfortunate as larval veliger's can easily be damaged or destroyed by extraneous toxic products during their 20-plus days swimming in the water column. The concern of fishermen is that there are already areas along the CT coast where the oyster spawning is sporadic, possibly due to a lack of larval survival from unknown pollutants in the water column (Appendix 2, Figure Ap2-3). Hopefully, a scientific approach can be initiated to understand and remedy a potentially large problem before damage is done to the resource, worth an estimated 30 million dollars in Long Island Sound (Appendix 2, Figure Ap2-3). The manufacturer's directions for use of acelepryn specify that the product is toxic to oysters and shrimp and should not be used near adjacent waterways (Appendix 1, Figure Ap1-1, Figure Ap2-4). The warnings about toxicity should prompt a full scientific review of the relevant benchmarks for oysters and research for their larval forms during the intervening 26 months prior to the complete exclusion of imidacloprid from applications to 300,000 acres of CT turf (10/1/27). Too often, damage to aquatic and marine organisms is observed only after the pesticide in question is widely used as in the case of imidacloprid (Ewere, E.E. *et al.*, 2021)

Based on a general lack of hard data supporting EPA benchmarks for oysters, more research on acelepryn is called for on oysters and their respective larvae before the valuable oyster fishery on Long Island Sound is exposed to and possibly compromised by another pesticide. Because acelepryn's legislative 26-month delay in replacing imidacloprid, there is a small window of opportunity to validate or revise existing EPA oyster benchmarks based on true scientific research. New York counties facing Long Island Sound have already banned most acelepryn uses except for limited and tightly controlled applications for golf courses due to acelepryn's ability to pollute natural waterbodies and aquifers. It would benefit the State of Connecticut to now conduct a true, in-depth scientific assessment of the possible environmental impact of acelepryn on oysters and their larvae before the pesticide becomes well established in CT waterways.

Acknowledgements:

ENB appreciates the help given to this research on acelepryn by the following volunteers: Team Leaders, Grayson Schottmuller, a recent graduate of Boston University's Marine Science program and Peter Fraboni, a recently retired marine scientist from Harbor Watch at Earthplace who completed the field research on ten golf courses and waterways with the help of Ananya Garg, a sophomore at the University of Maryland, Zoe Guerrero, a senior at Ridgefield High School, Kevin Zhang a freshman at Staples High School, Annabelle Lott and Dylan Phillips both graduates of Staples High School. All these students expressed a keen interest in marine sciences and worked hard to make the research effort a success under the leadership of Peter Fraboni and Grayson Schottmuller. Special thanks also go to Grayson Schottmuller and Peter Fraboni for their expertise and knowledge in completing the research of local waterways for the infiltration of acelepryn courses.

ENB also wishes to express sincere thanks to the organizations and individuals who funded the program on Acelepryn. Jamie Walsh, Chairman of the Westport Shellfish Commission, who not only convinced the Sexauer Foundation to provide \$10,000 funding to seed the acelepryn project but also immediately followed through with an additional \$1000 donation of his own, Rachel Precious of the Surfrider Foundation, who also provided \$1000 and Louise Washer of the Norwalk River Watershed Association who donated an additional \$3000. Without this generous support from the Sexauer Foundation, the Surfrider Foundation, the Norwalk River Watershed Association, and Jamie Walsh, the acelepryn project known as Clean Rivers 2 would never have materialized.

ENB would not have been able to quickly and accurately gather the scientific data on the use of acelepryn in surface waters had it not been for the timely research by CESE and the lab director, Christopher Perkins and Anthony Provats, CESE's Organics Laboratory Manager. Samples were analyzed within a week after they were received, and results were transmitted in an easily understandable format. Technical questions posed by ENB were quickly addressed by the CESE staff. Many thanks to CESE and Christopher Perkins. Acelepryn research was just one of the ongoing CESE projects during the CT growing season.

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Appendix 1. Golf course maps showing site locations for acelepryn sampling and adjacent waterways.

List of Golf Course Properties:

| Figure | Golf Course | Date Surveyed | Page No. |
|---------------|------------------------------|----------------------|-----------------|
| Figure Ap1-1 | Country Club of Darien | 6/3/25 | Ap1-2 |
| Figure Ap1-2 | New Canaan Country Club | 6/3/25 | Ap1-3 |
| Figure Ap1-3 | Oak Hills Park Golf Course | 6/25/25 | Ap1-4 |
| Figure Ap1-4 | Woodway Country Club | 6/24/25 | Ap1-5 |
| Figure Ap1-5 | Aspetuck Valley Country Club | 7/1/25 | Ap1-6 |
| Figure Ap1-6 | The Patterson Club | 7/10/25 | Ap1-7 |
| Figure Ap1-7 | Brooklawn Country Club | 7/15/25 | Ap1-8 |
| Figure Ap1-8 | Connecticut Golf Club | 7/11/25 | Ap1-10 |
| Figure Ap1-9 | Sterling Farms Golf Course | 6/26/25 | Ap1-11 |
| Figure Ap1-10 | Longshore Country Club | 7/16/25 | Ap1-12 |

Golf Course Summary Data Sheets for Acelepryn Survey:

| | | |
|--------------|--|--------|
| Table Ap1-11 | Summary by golf course of acelepryn data as of 7/25/25 | Ap1-13 |
| Table Ap1-12 | Summary of GPS site data for each golf course | Ap1-15 |

Figure Ap1-1. Map of the Darien Country Club and adjacent waterways showing monitoring sites for acelepryn pesticide on 6/24/25. Sites 1 and 2 on the Goodwives River are located upstream of the golf course while monitoring sites 3, 4, and 5 are located downstream on Goodwives River.

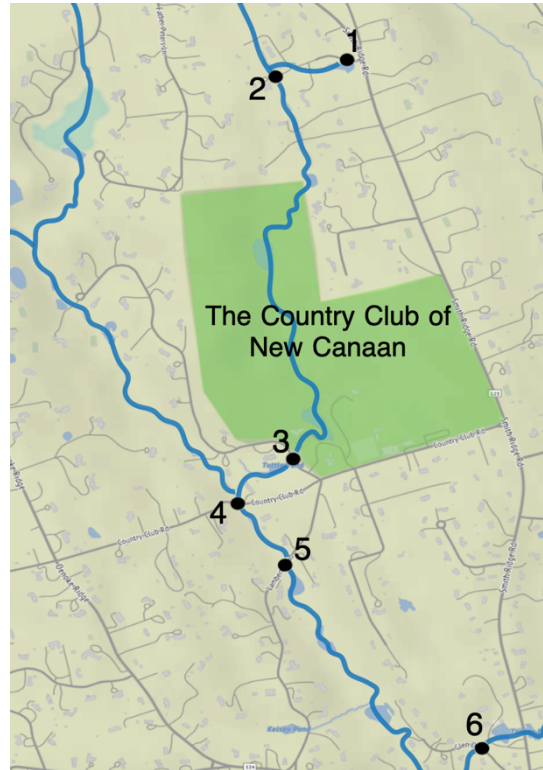


Monitoring upstream Site 1 and Site 2 showed minimal acelepryn concentrations of 0.059 µg/L and 0.058 µg/L respectively while downstream Site 3 showed a concentration of 1.61 µg/L of the pesticide. The concentration of acelepryn at Site 3 was approximately 27 times greater than what was observed Site 1 (Table Ap1-1) which may indicate that acelepryn is being used on the property. However, the observed acelepryn level at Site 3 was well below the long-term chronic level of 24.0 µg/L (EPA 2008) for oysters. Rainfall was only 0.17 inches in total for the 5-day period prior to ENB’s monitoring which means that stormwater runoff was at a minimum and stream flow may have been reduced prior to monitoring.

Table Ap1-1. Acelepryn concentrations µg/L, at monitoring sites in the Goodwives River, date and time of sample collection, and the town associated with the waterway.

| | | | | |
|---------|-------|------------------------------|-----------------|-------|
| Darien | 9:33 | The Country Club of Darien 1 | Goodwives River | 0.059 |
| 6/24/25 | 9:53 | The Country Club of Darien 2 | Goodwives River | 0.058 |
| | 10:07 | The Country Club of Darien 3 | Goodwives River | 1.61 |

Figure Ap1-2. Map of The Country Club of New Canaan and adjacent waterways showing surface water monitoring sites for acelepryn pesticide on 6/3/25. Monitoring sites 1 and 2 are located upstream of the premises on a branch of Five Mile River which enters the property and discharges downstream at Site 3. Sites 4 and 5 are located downstream from the golf course on the Five Mile River.

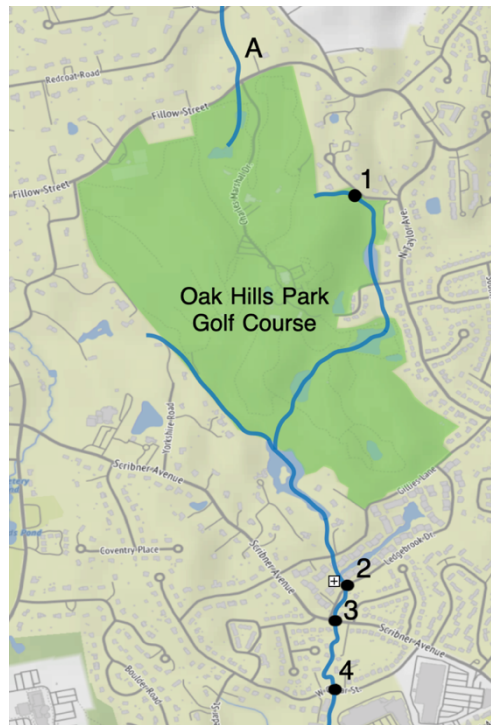


Upstream monitoring sites 1 and 2 showed acelepryn concentrations of 0.066 µg/L and ND, respectively, while downstream discharge Site 3 showed observed acelepryn levels at 0.549 µg/L or approximately eight times the concentration at Site 1. The large differential indicates that Acelepryn may be used on the property. The level of acelepryn observed at Site 3 was well below the long-term chronic level for oysters (EPA 2008). Rainfall in the five days prior to monitoring was 0.52 inches in total, which may have reduced stream flow and runoff.

Table Ap1-2. Acelepryn concentrations µg/L, at monitoring sites in the Five Mile River, date and time of sample collection, and the town associated with the waterway.

| | | | | |
|------------|-------|----------------------------------|-----------------|-------|
| New Canaan | 12:42 | The Country Club of New Canaan 1 | Five Mile River | 0.066 |
| 6/3/25 | 12:50 | The Country Club of New Canaan 2 | Five Mile River | ND |
| | 13:02 | The Country Club of New Canaan 3 | Five Mile River | 0.549 |
| | 13:25 | The Country Club of New Canaan 4 | Five Mile River | 0.083 |
| | 13:20 | The Country Club of New Canaan 5 | Five Mile River | 0.053 |
| | 13:33 | The Country Club of New Canaan 6 | Five Mile River | 0.125 |

Figure Ap1-3. Map of the Oak Hills Golf Course and adjacent waterways showing the location of four ENB surface water monitoring sites for acelepryn pesticides on 6/25/25. Site 1 is the upstream entry point of Keeler’s Brook to the premises. Site 2 is downstream, just below the confluence of Keeler’s Brook and an unnamed small creek, and sites 3 and 4 are located on the combined flow downstream of Site 2. Site A on the north end of the golf course is a dry stream bed that may be active under more normal weather conditions. No rainfall was recorded in the immediate area during the five days prior to monitoring.

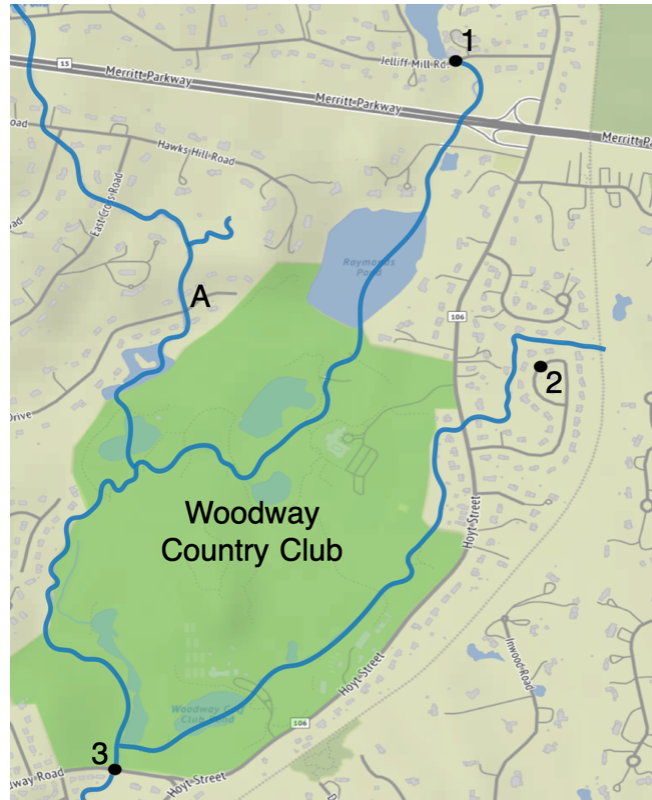


Although Keeler’s Brook may flow through the Oak Hills golf course during normal weather conditions, Site 1 on the east side of the premises was the only observed stream entering the property exhibiting an acelepryn concentration of 0.460 µg/L. Site 2 is located downstream just south of the confluence of the Keeler’s Brook discharge with a secondary discharge creek at an observed concentration of 0.125 µg/L. Sites 3 and 4 are downstream of Site 2 on the combined flow with concentrations of 0.209 µg/L and 0.185 µg/L, respectively. Based on the upstream acelepryn concentration at Site 1 being over three times what is observed at downstream Site 2, it suggests that the pesticide is not presently in use on the premises.

Table Ap1-3. Acelepryn concentrations, µg/L, at monitoring sites in Keeler’s Brook, date and time of sample collection, and the town associated with the waterway.

| | | | | |
|---------|-------|------------------------------|----------------|-------|
| Norwalk | 10:06 | Oak Hills Park Golf Course 1 | Keeler’s Brook | 0.460 |
| 6/25/25 | 10:34 | Oak Hills Park Golf Course 2 | Keeler’s Brook | 0.125 |
| | 10:41 | Oak Hills Park Golf Course 3 | Keeler’s Brook | 0.209 |
| | 10:49 | Oak Hills Park Golf Course 4 | Keeler’s Brook | 0.185 |

Figure Ap1-4. Map of the Woodway Golf Course showing the location of three adjacent, surface water monitoring sites for Acelepryn on 6/24/25. The Noroton River Sites 1 and 2 enter upstream of the property from the north and east, respectively, and make a confluence on the course premises just prior to discharging at Site 3. Total rainfall in the five days prior to monitoring is 0.13 inches.

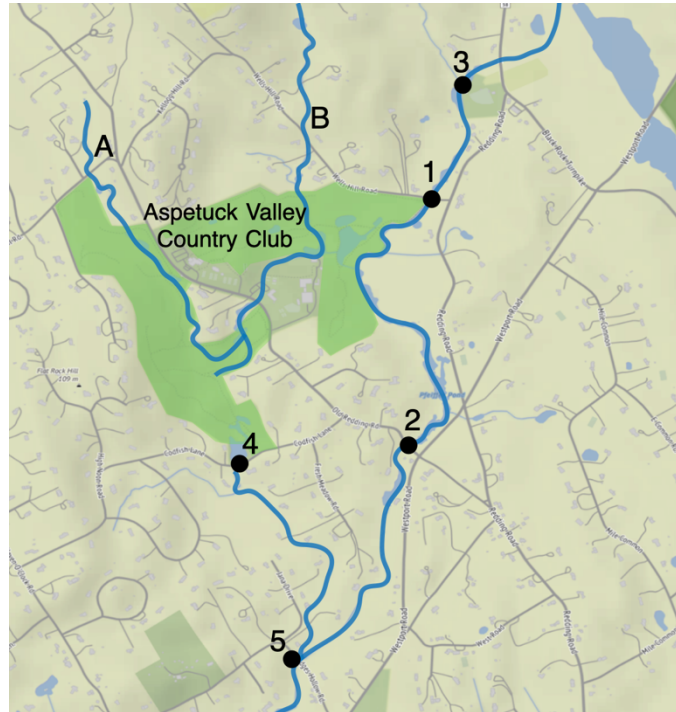


Upstream monitoring sites 1 and 2 north of the club showed acelepryn concentrations of 0.058 µg/l and 0.046 µg/L, respectively, while the downstream discharge at Site 3 showed a slightly lesser value of 0.033 µg/L. The results suggest that Acelepryn may not be used on the turf. Under normal weather conditions, a third upstream source from an unnamed stream to the west might be added to the total input. The stream bed at Site A is presently dry due to the lack of rainfall.

Table Ap1-4. Acelepryn concentrations µg/L, at monitoring sites in the Norwalk River, date and time of sample collection, and the town associated with the waterway.

| | | | | |
|---------|-------|------------------------|---------------|-------|
| Darien | 10:31 | Woodway Country Club 1 | Noroton River | 0.058 |
| 6/24/25 | 10:45 | Woodway Country Club 2 | Noroton River | 0.046 |
| | 10:09 | Woodway Country Club 3 | Noroton River | 0.033 |

Figure Ap1-5. Map of the Aspetuck Valley Golf Course and the location of five ENB surface water monitoring sites with results, 7/1/25. Flowing past Site 3, the Aspetuck River enters the northeast corner of the property at Site 1, where it makes a confluence with two other dry streambeds on the premises before the river discharges to the south and flows to the southeast at Site 2. Entry points A and B to the premises were dry on 7/1 due to an extended period of dry weather. Site 4 is at the discharge of a small pond on the property, which flows to the south where it meets with Site 5. Total rainfall in the five days prior to monitoring was 0.79 inches.

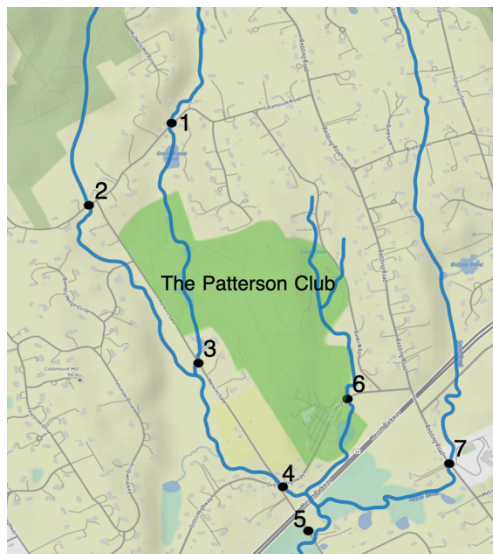


Monitoring sites 1, 2, and 3 on the Aspetuck River were all non-detectable (ND). The discharge from a small pond on the west side of the property at Site 4 shows a concentration of acelepryn at 0.287 µg/L, which is reduced downstream to zero at Site 5. Based on the available data, if Acelepryn is used on the property, there may be some application of the pesticide to the west end of the golf course.

Table Ap1-5. Acelepryn concentrations µg/L, at monitoring sites in the Aspetuck River, date and time of sample collection, and the town associated with the waterway.

| | | | | |
|--------|-------|--------------------------------|----------------|-------|
| Easton | 9:59 | Aspetuck Valley Country Club 1 | Aspetuck River | ND |
| 7/1/25 | 10:06 | Aspetuck Valley Country Club 2 | Aspetuck River | ND |
| | 9:50 | Aspetuck Valley Country Club 3 | Aspetuck River | ND |
| | 10:12 | Aspetuck Valley Country Club 4 | Aspetuck River | 0.287 |
| | 10:18 | Aspetuck Valley Country Club 5 | Aspetuck River | ND |

Figure Ap1-6 Map of the Patterson Golf Club with the location of seven ENB monitoring sites for acelepryn pesticide on 7/1/25. A branch of Sasco Brook enters the property upstream to the north at Site 1 and meanders to the southwest across the premises to discharge at Site 3, where it makes a confluence with another branch (found dry on 7/1). The brook then flows from Site 3 south to Site 4, where it combines with another small creek that originates on the east side of the golf course and flows through Site 6, where it bends to the southeast and makes a confluence at Site 4. The main branch of Sasco Brook is found to the east of the golf course, where it flows approximately 100 yards parallel to the east of the property to Site 7 and then flows west to a confluence with the other branches at Site 5.



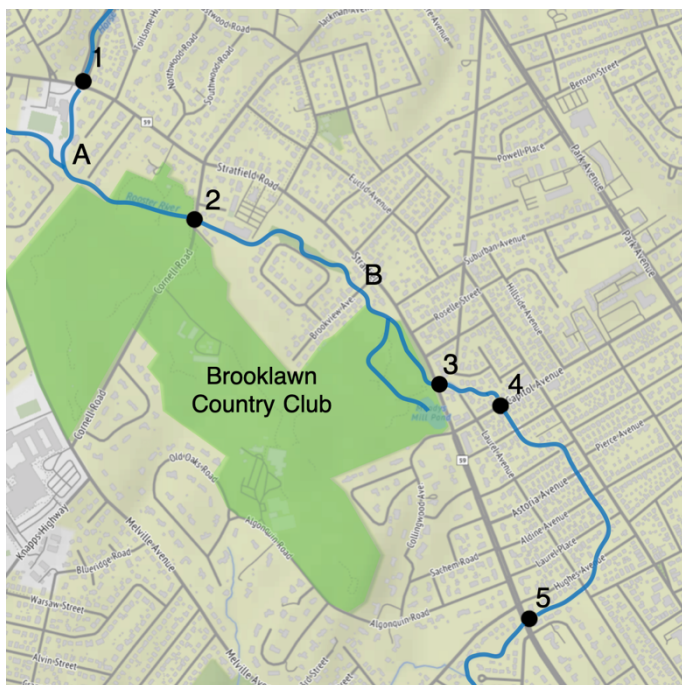
The western part of the property is nondetectable (ND) for acelepryn at sites 1, 2, and 3. Further to the south at Site 4, the combined brooks make a confluence with a small, unnamed creek that flows along the east side of the property south to Site 6, where it bends to the southwest and flows to Site 4. The total concentration of acelepryn measured at site 4 was 0.03 µg/L. Evidence of pesticide infiltration from the golf course may be at Site 6, where an acelepryn concentration of 0.307 µg/L was observed in surface waters on 7/1.

The main branch of Sasco Brook (located about 100 yards to the east of the golf course property line) flows south to Site 7, where the acelepryn concentration is ND, then bends southwest to Site 5, where the combined flow of all branches measures just 0.11 ug/L of acelepryn. Rainfall during the 5 days before testing totals just 0.30 inches on 5/29. Normal weather conditions may increase runoff on all waterways adjacent to the Paterson Club and possibly increase the acelepryn concentrations.

Table Ap1-6. Acelepryn concentrations µg/L, at monitoring sites in Sasco Brook, date and time of sample collection, and the associated information with the waterway.

| | | | | |
|---------------------|-------|----------------------|-------------|-------|
| Fairfield 7/1/25 | 9:23 | The Patterson Club 1 | Sasco Brook | ND |
| | 9:34 | The Patterson Club 2 | Sasco Brook | NSS |
| | 9:41 | The Patterson Club 3 | Sasco Brook | ND |
| | 9:52 | The Patterson Club 4 | Sasco Brook | 0.03 |
| | 9:55 | The Patterson Club 5 | Sasco Brook | 0.11 |
| | 10:05 | The Patterson Club 6 | Sasco Brook | 0.307 |
| | 10:10 | The Patterson Club 7 | Sasco Brook | ND |

Figure Ap1-7. Map of Brooklawn Country Club showing four ENB monitoring sites for acelepryn pesticides on 7/15/25. Site 1 is located on Horse Tavern Brook prior to its confluence with London Brook downstream, where the combined flow enters the golf course on the northwest corner of the property (A). The combined waters flow across a narrow northern section of the property to its discharge at Site 2. The waterway (now named the Rooster River) flows to the southeast and re-enters the northeast corner of the Country Club (B). It then flows to the southeast inside a second narrow wedge of the property before entering a small pond and being discharged from the property at Site 3. Water exiting from Site 3 flows 200 ft downstream to Site 4, where Rooster River is channeled underground. Rainfall accumulation for the period of five days before testing totaled 0.22 inches on 7/15, which fell after monitoring was completed. More normal weather conditions may have produced more runoff, which could have altered results.



Just before Horse Tavern Brook enters the golf course on the northwest corner (A on the site map) of the property it makes a confluence with London Brook. ENB was unable to obtain sample at the point of entry to the property where London Brook waters were entrained with Horse Tavern Brook until the combined stream is discharged from the property approximately 700 ft. further east at Site 2. The acelepryn concentration observed at Site 1 on Horse Block Tavern was observed at $0.043 \mu\text{g/L}$ while the combined stream discharging at Site 2 was observed at $0.266 \mu\text{g/L}$ or nearly six times the value observed at Site 1. The acelepryn results at Site 2 do not reflect the possible volume of pesticide entrained in the waters from London Brook before entry to the property. This could indicate that the elevated acelepryn concentration observed at Site 2 may not be an accurate assessment of pesticide use on the golf course. After discharge from Site 2, the combined streams (now

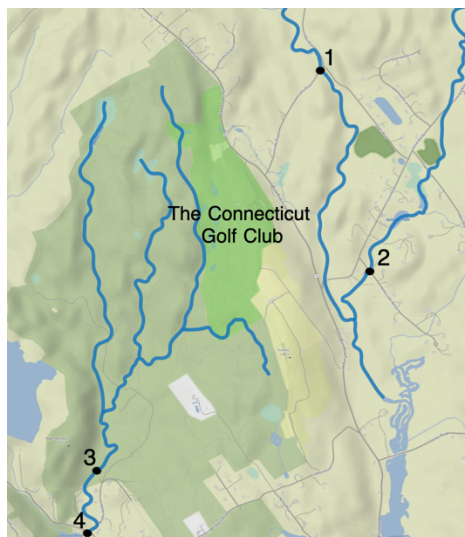
known as Rooster River) bend to the southeast only to reenter the property on the northeast portion of the lower quadrant.

Once again, acelepryn concentrations are not monitored at the point of reentry (B on the site map), which leads to speculation as to the accurate levels of pesticide reentering the property. Once inside the property, the Rooster River flows southeast approximately 700 ft parallel to the property line to a small pond to be discharged downstream at Site 3, with acelepryn valued at 0.209 µg/L. The discharged waters then flow due east to Site 4 where acelepryn levels are valued at 0.060 µg/L just before the stream goes underground. Based on ENB’s inability to monitor surface waters at the two key entry points, due to private property restrictions, it is difficult to make a sound judgment as to the actual amount of acelepryn used on the property. Elevated pesticide levels observed at Site 2 and Site 3 discharge point to infiltration of the pesticide from the golf course as well as adjacent surface waters.

Table Ap1-7. Acelepryn concentrations µg/L, at monitoring sites in the Rooster River, date and time of sample collection, and the town associated with the waterway.

| | | | | |
|-----------|-------|--------------------------|---------------|-------|
| Fairfield | 9:22 | Brooklawn Country Club 1 | Rooster River | 0.043 |
| 7/15/25 | 9:37 | Brooklawn Country Club 2 | Rooster River | 0.266 |
| | 11:02 | Brooklawn Country Club 3 | Rooster River | 0.209 |
| | 11:19 | Brooklawn Country Club 4 | Rooster River | 0.06 |

Figure Ap1-8. Map of the Connecticut Golf Club showing four monitoring sites for acelepryn pesticides on 7/11/25. Sites 1 and 2 are located on the Aspetuck River which is located to the east and runs parallel to the golf course. Hawley’s Brook which originates on the property and discharges downstream at Site 3 and flows south off the premises to Site 4. Rainfall during the five days prior to testing totaled 0.34 inches.



The Aspetuck River, which flows to the east and is parallel to the golf course, has two monitoring points. Site 1, upstream of the property, shows acelepryn levels at ND, while acelepryn levels at downstream Site 2 showed acelepryn at 0.02 µg/L. The river was originally chosen because it is at a lower level than the golf course and might have been subject to runoff from the property. The observed trace concentration of acelepryn at Site 2 may not be strictly from the golf course premises, as the river is far from the property, and other possible sources may have infiltrated into the waterway.

If the pesticide is used at all, the most likely location for an observed acelepryn concentration would be Site 3 at 0.07 µg/L, where Hawley’s Brook discharges from the golf course. The brook originates on and has several branches on the premises. Based on a trace amount of the pesticide observed at Site 3, it is difficult to judge if the property is presently using or has used the pesticide in the past. Site 4, with an observed acelepryn value of 0.109 µg/l, is just downstream from Site 3. A tributary not related to the golf course enters between the sites, and the intervening flow could be a probable source of acelepryn from some other application at a nearby property.

Table Ap1-8. Acelepryn concentrations µg/L, at monitoring sites in the Aspetuck River and Hawley’s Brook, date and time of sample collection, and the town associated with the waterway.

| | | | | |
|---------|-------|-----------------------------|--------------------------------|-------|
| Easton | 9:45 | The Connecticut Golf Club 1 | Aspetuck River & Hawleys Brook | ND |
| 7/11/25 | 10:00 | The Connecticut Golf Club 2 | Aspetuck River & Hawleys Brook | 0.02 |
| | 10:17 | The Connecticut Golf Club 3 | Aspetuck River & Hawleys Brook | 0.07 |
| | 10:29 | The Connecticut Golf Club 4 | Aspetuck River & Hawleys Brook | 0.109 |

Figure Ap1-9. Map of the Sterling Farms Golf Course with the location of four ENB monitoring sites for acelepryn on 6/25/25. Surface water enters this property from Springdale Brook downstream from Site 1, then meanders across a small northeast corner of the premises before being discharged on the north side of the property at Site 3. The Noroton River runs parallel to the north side of the property and has monitoring sites at 2, 3, and 4. Rainfall for the five days before testing totaled 0.09 inches.



Springdale Brook at Site 1 was ND for acelepryn. The Noroton River research by ENB begins at Site 2, which is upstream of the property with observed acelepryn at 0.036 µg/L, which may be due to upstream sources and not related to the golf course. Moving downstream to Site 3, which serves as a confluence with the golf course’s discharge, the concentration of acelepryn increases to 0.044 µg/L, showing a slight increase of 0.008 µg/L. This minuscule increase of acelepryn at Site 3 does not support the use of the pesticide on Sterling Farms Golf Course’s turf. The acelepryn concentration observed at Site 4 of 0.083 µg/L is over a half mile downstream from the golf course property. The additional input is likely due to unrelated sources of acelepryn use on other properties along the route of the Noroton River.

Table Ap1-9 Acelepryn concentrations µg/L, at monitoring sites in the Noroton River and Springdale Brook, date and time of sample collection, and the town associated with the waterway.

| | | | | |
|----------|-------|------------------------------|----------------------------------|-------|
| Stamford | 9:52 | Sterling Farms Golf Course 1 | Noroton River & Springdale Brook | ND |
| 6/26/25 | 10:02 | Sterling Farms Golf Course 2 | Noroton River & Springdale Brook | 0.036 |
| | 10:13 | Sterling Farms Golf Course 3 | Noroton River & Springdale Brook | 0.044 |
| | 10:24 | Sterling Farms Golf Course 4 | Noroton River & Springdale Brook | 0.083 |

Figure Ap1-10. Map of Longshore Golf Course showing the location of six surface water monitoring test sites for acelepryn on 7/16, 7/22, and 7/24. Sites 1, 2, and 3 are all in marine waters monitored on 7/22. Sites 1 and 2 are located on the west end of the property in Saugatuck Harbor and are ND, while Site 3 is located on a small embayment on the south side of the property at the town marina and is the only site showing a trace amount of acelepryn at 0.105 µg/L. Site 4 is the discharge of Gray’s Creek located at the west end of the property; Site 5 is the discharge of a small creek that partially drains the eastern end of the golf course, and Site 6 is a continually running pipe discharging to the marine embayment near the southeast corner of the premises. All three sites are freshwater and are ND for acelepryn. Sites 4 and 5 were monitored on 7/16, and Site 6 was monitored on 7/24. The rainfall total for 5 days before 7/22 totaled just 0.14 inches, and the rainfall 5 days before 7/16 totaled 0.22 inches 5.



Table Ap1-10. Acelepryn concentrations µg/L, at monitoring sites in Saugatuck Harbor west, Gray’s Creek, east and a small embayment south of the property, dates and times of sample collection, and the town associated with the waterway.

| | | | | |
|----------|-------|-------------------------|-----------------|-------|
| Westport | 9:34 | Longshore Golf Course 1 | Saugatuck River | ND |
| 7/22/25 | 10:25 | Longshore Golf Course 2 | Saugatuck River | ND |
| | 11:11 | Longshore Golf Course 3 | Saugatuck River | 0.105 |
| | 9:31 | Longshore Golf Course 4 | Saugatuck River | ND |
| | 9:16 | Longshore Golf Course 5 | Saugatuck River | ND |
| | 10:48 | Longshore Golf Course 6 | Saugatuck River | ND |

Table Ap1-11. Acelepryn and Degradant-MW 462.9 concentrations $\mu\text{g/L}$, at all monitoring sites across the ten golf courses tested by ENB, dates and times of sample collection, and the town associated with the waterway.

| | | | | 1* | 2 | 3 |
|------------|-----------|----------------------------------|----------------------------------|----------------------------------|-----------|-------|
| | | | | Acelepryn | Degradant | Total |
| Darien | 9:33 | The Country Club of Darien 1 | Goodwives River | 0.059 | ND | 0.059 |
| 6/3/25 | 9:53 | The Country Club of Darien 2 | Goodwives River | 0.058 | 0.028 | 0.086 |
| | 10:07 | The Country Club of Darien 3 | Goodwives River | 1.61 | 0.496 | 2.106 |
| New Canaan | 12:42 | The Country Club of New Canaan 1 | Five Mile River | 0.066 | ND | 0.066 |
| 6/3/25 | 12:50 | The Country Club of New Canaan 2 | Five Mile River | ND | ND | ND |
| | 13:02 | The Country Club of New Canaan 3 | Five Mile River | 0.549 | 0.119 | 0.668 |
| | 13:25 | The Country Club of New Canaan 4 | Five Mile River | 0.083 | ND | 0.083 |
| | 13:20 | The Country Club of New Canaan 5 | Five Mile River | 0.053 | ND | 0.053 |
| | 13:33 | The Country Club of New Canaan 6 | Five Mile River | 0.125 | ND | 0.125 |
| Norwalk | 10:06 | Oak Hills Park Golf Course 1 | Keeler's Brook | 0.460 | 0.101 | 0.561 |
| 6/25/25 | 10:34 | Oak Hills Park Golf Course 2 | Keeler's Brook | 0.125 | 0.036 | 0.161 |
| | 10:41 | Oak Hills Park Golf Course 3 | Keeler's Brook | 0.209 | 0.05 | 0.259 |
| | 10:49 | Oak Hills Park Golf Course 4 | Keeler's Brook | 0.185 | 0.027 | 0.212 |
| | Darien | 10:31 | Woodway Country Club 1 | Noroton River | 0.058 | 0.052 |
| 6/24/25 | 10:45 | Woodway Country Club 2 | Noroton River | 0.046 | ND | 0.046 |
| | 10:09 | Woodway Country Club 3 | Noroton River | 0.033 | 0.026 | 0.059 |
| Easton | 9:59 | Aspetuck Valley Country Club 1 | Aspetuck River | ND | ND | ND |
| 7/1/25 | 10:06 | Aspetuck Valley Country Club 2 | Aspetuck River | ND | ND | ND |
| | 9:50 | Aspetuck Valley Country Club 3 | Aspetuck River | ND | ND | ND |
| | 10:12 | Aspetuck Valley Country Club 4 | Aspetuck River | 0.287 | 1.36 | 1.647 |
| | 10:18 | Aspetuck Valley Country Club 5 | Aspetuck River | ND | ND | ND |
| | Fairfield | 9:23 | The Patterson Club 1 | Sasco Brook | ND | ND |
| 7/10/25 | 9:34 | The Patterson Club 2 | Sasco Brook | NSS | NSS | NSS |
| | 9:41 | The Patterson Club 3 | Sasco Brook | ND | ND | ND |
| | 9:52 | The Patterson Club 4 | Sasco Brook | 0.03 | ND | 0.03 |
| | 9:55 | The Patterson Club 5 | Sasco Brook | 0.11 | ND | 0.11 |
| | 10:05 | The Patterson Club 6 | Sasco Brook | 0.307 | 0.085 | 0.392 |
| | 10:10 | The Patterson Club 7 | Sasco Brook | ND | ND | ND |
| Fairfield | 9:22 | Brooklawn Country Club 1 | Rooster River | 0.043 | ND | 0.043 |
| 7/15/25 | 9:37 | Brooklawn Country Club 2 | Rooster River | 0.266 | ND | 0.266 |
| | 11:02 | Brooklawn Country Club 3 | Rooster River | 0.209 | ND | 0.209 |
| | 11:19 | Brooklawn Country Club 4 | Rooster River | 0.06 | ND | 0.06 |
| | Easton | 9:45 | The Connecticut Golf Club 1 | Aspetuck River & Hawleys Brook | ND | ND |
| 7/11/25 | 10:00 | The Connecticut Golf Club 2 | Aspetuck River & Hawleys Brook | 0.02 | ND | 0.02 |
| | 10:17 | The Connecticut Golf Club 3 | Aspetuck River & Hawleys Brook | 0.07 | 0.037 | 0.107 |
| | 10:29 | The Connecticut Golf Club 4 | Aspetuck River & Hawleys Brook | 0.109 | 0.028 | 0.137 |
| | Stamford | 9:52 | Sterling Farms Golf Course 1 | Noroton River & Springdale Brook | ND | ND |
| 6/26/25 | 10:02 | Sterling Farms Golf Course 2 | Noroton River & Springdale Brook | 0.036 | ND | 0.036 |
| | 10:13 | Sterling Farms Golf Course 3 | Noroton River & Springdale Brook | 0.044 | ND | 0.044 |
| | 10:24 | Sterling Farms Golf Course 4 | Noroton River & Springdale Brook | 0.083 | 0.017 | 0.1 |
| | Westport | 9:34 | Longshore Golf Course 1 | Saugatuck River | ND | ND |
| 7/22/25 | 10:25 | Longshore Golf Course 2 | Saugatuck River | ND | ND | ND |
| | 11:11 | Longshore Golf Course 3 | Saugatuck River | 0.105 | ND | 0.105 |
| | 9:31 | Longshore Golf Course 4 | Saugatuck River | ND | ND | ND |
| | 9:16 | Longshore Golf Course 5 | Saugatuck River | ND | ND | ND |
| | 10:48 | Longshore Golf Course 6 | Saugatuck River | ND | ND | ND |

* When CESE processed ENB's surface water samples for acelepryn, a degradant product turned up in 43% of the positive samples shown in column 2, which would have increased some of the acelepryn results in a random manner as reflected in column 3. Because no toxicology research has been done on the degradant, and its composition is unknown, ENB decided to exclude the product from the results submitted by CESE and used data clearly identified in column 1 as displayed in Table 1 and Tables Ap1-1 through Table Ap-10.

Table Ap1-12. GPS coordinates for each site and rainfall data by date for each of the ten golf courses tested for Acelepryn.

Country Club of Darien, Sampled on 6/3/2025

| Site | | GPS | Rainfall | |
|----------------|----|--------------------------|----------|-------|
| Pembrook Rd. | #1 | 41.10689° N, 73.47830° W | 6/3/25 | 0.00" |
| Salsbury Rd. | #2 | 41.10517° N, 73.47384° W | 6/2/25 | 0.00" |
| Buttonwood Ln. | #3 | 41.09380° N, 73.47573° W | 6/1/25 | 0.05" |

The Country Club of New Canaan, Sampled on 6/3/2025

| Site | | GPS | Rainfall | |
|------------------|----|--------------------------|----------|-------|
| Wydendown Rd. | #1 | 41.18224° N, 73.50096° W | 6/3/25 | 0.00" |
| Wydendown Rd. | #2 | 41.18170° N, 73.50360° W | 6/2/25 | 0.00" |
| Indian Rock Rd. | #3 | 41.16952° N, 73.50295° W | 6/1/25 | 0.05" |
| Country Club Rd. | #4 | 41.16810° N, 73.50500° W | | |
| Lambert Rd. | #5 | 41.16614° N, 73.50325° W | | |
| Glen Dr. | #6 | 41.16030° N, 73.49597° W | | |

Oak Hills Park Golf Course, Sampled on 6/25/2025

| Site | | GPS | Rainfall | |
|----------------|----|--------------------------|----------|-------|
| Chipping Ln. | #1 | 41.11650° N, 73.44058° W | 6/25/25 | 0.14" |
| Ledgebrook Dr. | #2 | 41.10595° N, 73.44102° W | 6/24/25 | 0.00" |
| Scribner Ave. | #3 | 41.10499° N, 73.44141° W | 6/23/25 | 0.08" |
| W Cedar St. | #4 | 41.10315° N, 73.44136° W | | |

Woodway Country Club, Sampled on 6/24/2025

| Site | | GPS | Rainfall | |
|------------------|----|--------------------------|----------|-------|
| Jelliff Mill Rd. | #1 | 41.10144° N, 73.50137° W | 6/24/25 | 0.00" |
| Country Club Rd. | #2 | 41.11208° N, 73.49887° W | 6/23/25 | 0.08" |
| Woodway Rd. | #3 | 41.10295° N, 73.51000° W | 6/22/25 | 0.01" |

Aspetuck Valley Country Club, Sampled on 7/1/2025

| Site | | GPS | Rainfall | |
|-------------------|----|--------------------------|----------|-------|
| Wells Hill Rd. | #1 | 41.22875° N, 73.32403° W | 7/1/25 | 0.04" |
| Old Redding Rd. | #2 | 41.22062° N, 73.32491° W | 6/30/25 | 0.00" |
| Aspetuck Park | #3 | 41.23249° N, 73.32203° W | 6/29/25 | 0.00" |
| Codfish Ln. | #4 | 41.22000° N, 73.33127° W | | |
| Judges Hollow Rd. | #5 | 41.21347° N, 73.32899° W | | |

Patterson Club, Sampled on 7/10/2025

| Site | | GPS | Rainfall | |
|-----------------|----|--------------------------|----------|-------|
| Catamount Rd. | #1 | 41.19767° N, 73.31931° W | 7/10/25 | 0.05" |
| Catamount Rd. | #2 | 41.19400° N, 73.32354° W | 7/9/25 | 0.24" |
| Merwin's Ln. | #3 | 41.18694° N, 73.31794° W | 7/8/25 | 0.04" |
| Merwin's Cr.Hwy | #4 | 41.18141° N, 73.31362° W | | |
| Merwin's Ln. | #5 | 41.17944° N, 73.31232° W | | |
| Cross Hwy. | #6 | 41.18534° N, 73.31032° W | | |
| Redding Rd. | #7 | 41.18245° N, 73.30512° W | | |

Brooklawn Country Club, Sampled on 7/15/2025

| Site | | GPS | Rainfall | |
|----------------|----|--------------------------|----------|-------|
| Stratfield Rd. | #1 | 41.19586° N, 73.23214° W | 7/15/25 | 0.22" |
| Cornell Rd. | #2 | 41.19260° N, 73.22846° W | 7/14/25 | 0.00" |
| Capitol Ave. | #3 | 41.18808° N, 73.21862° W | 7/13/25 | 0.00" |
| Brooklawn Ave. | #4 | 41.18285° N, 73.21776° W | | |

Connecticut Golf Club, Sampled on 7/11/2025

| Site | | GPS | Rainfall | |
|------------------|----|--------------------------|----------|-------|
| Valley Rd. | #1 | 41.27381° N, 73.32521° W | 7/11/25 | 0.00" |
| Honeysuckle Hill | #2 | 41.25991° N, 73.32130° W | 7/10/25 | 0.05" |
| Bradley Park | #3 | 41.24578° N, 73.34300° W | 7/9/25 | 0.24" |
| Bradley Rd. | #4 | 41.24209° N, 73.34311° W | | |

Sterling Farms Golf Course, Sampled on 6/26/2025

| Site | | GPS | Rainfall | |
|-----------------|----|--------------------------|----------|-------|
| Theresa Ct. | #1 | 41.11050° N, 73.52380° W | 6/26/25 | 0.00" |
| Eden Rd. | #2 | 41.11167° N, 73.52153° W | 6/25/25 | 0.14" |
| Deep Spring Ln. | #3 | 41.10895° N, 73.51939° W | 6/24/25 | 0.00" |
| Bouton St. W. | #4 | 41.10144° N, 73.51829° W | | |

Longshore Country Club, Sampled on 7/22/25 (Sites 1-3), on 7/16/25 (Sites 4-5), on 7/24/25 (Site 6)

| Site | | GPS | Rainfall | | | | | |
|---------------------|----|--------------------------|----------|-------|---------|-------|---------|-------|
| Saugatuck River | #1 | 41.11024° N, 73.37139° W | 7/16/25 | 0.00" | 7/22/25 | 0.00" | 7/24/25 | 0.00" |
| Saugatuck River | #2 | 41.10851° N, 73.37136° W | 7/15/25 | 0.00" | 7/21/25 | 0.00" | 7/23/25 | 0.00" |
| Longshore Marina | #3 | 41.10889° N, 73.36574° W | 7/14/25 | 0.00" | 7/20/25 | 0.05" | 7/22/25 | 0.00" |
| Compo Rd. S. | #4 | 41.11200° N, 73.35598° W | | | | | | |
| Herbert Baldwin Dr. | #5 | 41.10911° N, 73.36556° W | | | | | | |
| Herbert Baldwin Dr. | #6 | 41.11048° N, 73.35632° W | | | | | | |

Appendix 2. Manufacture's Product use Restrictions for Acelepryn, EPA Benchmarks for Acute and Long-Term Chronic use of Acelepryn for Oysters, and Connecticut Department of Agriculture, Bureau of Aquaculture's Letter Supporting ENB's Investigation of the Potential Toxicity of Acelepryn to the L.I.S. Oyster Fishery.

Figure Ap2-1. FMC's use directions for Acelepryn highlight toxicity to invertebrates, oysters, shrimp, and dangers to aquatic invertebrates when using the product near water. FMC's recognition that Acelepryn sales are banned in four NY counties.

| |
|---|
| <p>ENVIRONMENTAL HAZARDS</p> <p>This pesticide is toxic to aquatic invertebrates, oysters, and shrimp. Do not apply directly to water. Drift and runoff may be hazardous to aquatic organisms in water adjacent to use sites.</p> <p>Surface Water Advisory:</p> <p>This product may impact surface water quality due to runoff of rain water. This is especially true for poorly draining soils and soils with shallow ground water. This product is classified as having high potential for reaching surface water via runoff for several months or more after application. A level, well-maintained vegetative buffer strip between areas to which this product is applied and surface water features such as ponds, streams, and springs will reduce the potential loading of chlorantraniliprole from runoff water and sediment. Runoff of this product will be reduced by avoiding applications when rainfall is forecasted to occur within 48 hours.</p> <p>Ground Water Advisory:</p> <p>This chemical has properties and characteristics associated with chemicals detected in ground water. This chemical may leach into ground water if used in areas where soils are permeable, particularly where the water table is shallow.</p> |
|---|

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Chlorantraniliprole 47.85SC Insecticide must be used only in accordance with the directions on this label, or as otherwise permitted by FIFRA. Always read the entire label, including the Limitation of Warranty and Liability. Shake well before using.

Chlorantraniliprole 47.85SC Insecticide may be used on crops on this label that are grown for seed production.

RESTRICTIONS

- Do not treat plants grown for transplanting. Not for use in nurseries, plant propagation houses, or greenhouses by commercial grower or any other transplant producers on plants being grown for transplanting unless otherwise specified.
- This product is for commercial production only.
- Not for use on ornamental plants or plants being grown for ornamental purposes.
- Not for residential use.
- Do not use in greenhouses unless otherwise specified.
- Do not apply Chlorantraniliprole 47.85SC Insecticide through any irrigation system unless specified in this label or in EPA approved supplemental labeling.

For New York State Only:

The following restrictions are required to permit use of Chlorantraniliprole 47.85SC Insecticide in the State of New York:

- This product may not be applied within 100 feet of a water body (lake, pond, river, stream, wetland, or drainage ditch).
- Aerial application of this product is prohibited.
- Not for sale, sale into, distribution and/or use in Nassau, Suffolk, Kings, and Queens counties of New York State.

AGRICULTURAL USE REQUIREMENTS

Chlorantraniliprole 47.85SC Insecticide must be used only in accordance with its labeling and with the Worker 40 CFR Part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on the label about personal protective equipment, restricted-entry interval, and notification to workers (as applicable).

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

For any requirements specific to your State or Tribe, consult the State or Tribal agency responsible for pesticide regulation.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 4 hours.

For early entry into treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, wear:

- Long-sleeved shirt and long pants
- Shoes plus socks

Figure Ap2-2. EPA’s 2008 Formulation of long-term chronic and acute benchmarks for oysters exposed to acelepryn and recognition that future adjustments may be necessary.

Formulations, and Degradates

| Test Material Identification | Nature of Tested Material | Registrant Study ID | Test Species | Test Type | Endpoint Type | Effects Value Based on A.S. | Units of Active Substance |
|------------------------------|---------------------------|---------------------|--|---------------------------|---------------|-----------------------------|---------------------------|
| Chlorantranilprole Technical | Technical | DuPont-12334 | <i>Cyprinodon variegatus</i> (Sheepshead minnow) | Acute | LC 50 | >12.0 | mg/L |
| Chlorantranilprole Technical | Technical | DuPont-14394 | <i>Cyprinodon variegatus</i> (Sheepshead minnow) | Early Life Stage Toxicity | NOAEC | 1.28 | mg/L |

Estuarine/Marine Invertebrates-

Chlorantranilprole is very highly toxic to certain estuarine marine invertebrates, based on the data for the eastern oyster. Because the most sensitive species acutely (oyster) is not represented by chronic values, the acute to chronic ratio for the mysid ($1.15/0.695 = 1.65$) was applied to the oyster LC50 to estimate a chronic effects endpoint for this species ($0.0399 \text{ mg/L}/1.65 = 0.024 \text{ mg/L}$).

Table 13. Estuarine/Marine Invertebrate Toxicity Data for Chlorantranilprole, Formulations, and Degradates

| Test Material Identification | Nature of Tested Material | Registrant Study ID | Test Species | Test Type | Endpoint Type | Effects Value Based on A.S. | Units of Active Substance |
|------------------------------|---------------------------|---------------------|---|-----------|---------------|-----------------------------|---------------------------|
| Chlorantranilprole Technical | Technical | DuPont-12335 | <i>Americamysis bahia</i> (Mysid shrimp) | Acute | LC 50 | 1.15 | mg chlorantranilprole/L |
| Chlorantranilprole Technical | Technical | DuPont-14397 | <i>Americamysis bahia</i> (Mysid shrimp) | Chronic | NOAEC | 0.695 | mg chlorantranilprole/L |
| Chlorantranilprole Technical | Technical | DuPont-12412 | <i>Crassostrea virginica</i> (Eastern oyster) | Acute | EC 50 | 0.0399 | mg chlorantranilprole/L |

Plants

Terrestrial Plants-

The following table presents the available terrestrial plant toxicity data.

Table 14. Terrestrial Plant Toxicity Data for Chlorantranilprole, Formulations, and Degradates

| Test Material Identification | Nature of Tested Material | Registrant Study ID | Test Species | Test Type | Endpoint Type | Effects Value Based on A.S. | Units of Active Substance |
|------------------------------|---------------------------|---------------------|--|------------------|-------------------------------|--|---------------------------|
| Chlorantranilprole 20SC | Formulated Product | DuPont-19074 | <i>Zea mays</i> (corn) <i>Avena sativa</i> (oat) <i>Allium cepa</i> (common onion) <i>Lolium perenne</i> (perennial ryegrass) | Vegetative vigor | EC25 dicots EC5 dicots | >300 >300 cucumber, rape <300 all others | g. chlorantranilprole /ha |

Figure Ap2-3. CT DA/BA letter of support for ENB's research for possible patterns of acelepryn of use on ten golf courses in Fairfield, County, CT.



CONNECTICUT DEPARTMENT OF AGRICULTURE BUREAU OF AQUACULTURE
P.O. Box 97, 190 Rogers Avenue, Milford, CT 06460
203-874-0696 | Agri.Aquaculture@ct.gov
Affirmative Action/Equal Employment Opportunity Employer



June 6, 2025

Re: Grant to reduce the threat of Acelepryn to aquatic invertebrates and the oyster fishery in Long Island Sound

To Whom it May Concern,

The Department of Agriculture, Bureau of Aquaculture (DoAG) is pleased to support the East Norwalk Blue proposal to pursue testing for Chlorantraniliprole (Acelepryn) in Connecticut waters to assess the potential negative environmental impacts to oysters in Long Island Sound. The DoAG is the State Shellfish Authority in Connecticut and participates in the National Shellfish Sanitation Program (NSSP) as a shellfish-producing State. The NSSP is the federal/state cooperative program recognized by the U. S. Food and Drug Administration (FDA) and the Interstate Shellfish Sanitation Conference (ISSC) for the sanitary control of shellfish produced and sold for human consumption. The purpose of the NSSP is to promote and improve the sanitation of shellfish (oysters, clams, mussels and scallops) moving in interstate commerce through federal/state cooperation and uniformity of State shellfish programs. The DoAG is the responsible agency for classifying shellfish waters in accordance with the NSSP to protect public health and the health of the state's shellfish resource.

Connecticut has a robust shellfish industry, valued over 30 million dollars that, unlike other states, relies mainly on natural oyster set rather than hatchery reared oyster seed. East Norwalk Blue's proposal would assess surface water at 56 locations near 10 golf courses, and up to 9 marine sites off rivers entering Long Island Sound, to determine if Acelepryn is entering the waters of Long Island Sound and impacting oyster resources. New York state has banned all sales and distribution of Acelepryn in 4 counties due to its toxicity. However, data is needed in order for the Connecticut legislature to take similar action.

Over the years, DoAG and Dick Harris, in his former role at Earthplace, have worked together to conduct pollution source tracking in Darien, Norwalk, and Westport Connecticut. This work has led to the discovery and elimination of sewage and other contaminants entering Long Island Sound. The NSSP requires that shellfish growing areas are free of poisonous and deleterious substances. East Norwalk Blue has considerable experience conducting water sampling for both biological and chemical contaminants. An effort to investigate the potential negative impacts of introducing a new pesticide such as this is beyond our current staffing and laboratory capabilities. Partnerships with organizations like East Norwalk Blue allow us to expand our abilities to protect both the health of the public and the shellfish resources upon which our local industry relies.

East Norwalk Blue's proposal aligns with, bolsters, and supports the efforts of the DoAG to identify sources of pollution to the states growing areas. Therefore, we support the East Norwalk Blue's proposal to assess the impacts of the use of the pesticide Acelepryn on the aquatic resources of Long Island Sound.

Sincerely,

Alissa Dragan, Supervising Environmental Analyst
Connecticut Department of Agriculture, Bureau of Aquaculture
Alissa.dragan@ct.gov

Figure Ap2-4. Syngenta's tightly controlled application procedures for acelepryn only on golf courses within the four counties on Long Island.



Section 24(c) Special Local Need Label

**FOR USE IN KINGS, QUEENS, NASSAU AND SUFFOLK COUNTIES IN NEW YORK STATE
ONLY ON GOLF COURSE TURF**

**Acelepryn®
For Control of White Grubs and Turf Caterpillars on Golf Course Turfgrass Only**

**EPA Reg. No. 100-1489
EPA SLN No. NY-190009**

**This label expires and must not be distributed or used in accordance with
this SLN registration after December 31, 2024**

KEEP OUT OF REACH OF CHILDREN

DIRECTIONS FOR USE

- It is a violation of Federal law to use this product in a manner inconsistent with its labeling.
- This label must be in the possession of the user at the time of application.
- Follow all applicable directions, restrictions, Worker Protection Standard requirements, and precautions on the EPA-registered label.

The following restrictions are required to permit use of Acelepryn in the State of New York:

- Product is restricted use by certified applicators only in New York State
- **Golf course greens and tee boxes: DO NOT** apply this product within 25 feet of a water body (lake, pond, river, stream, wetland, or drainage ditch).
- **Golf course fairways: DO NOT** apply this product within 50 feet of a water body (lake, pond, river, stream, wetland, or drainage ditch).
- **Other use sites: DO NOT** apply this product within 100 feet of a water body (lake, pond, river, stream, wetland, or drainage ditch).

APPLICATION RATES FOR GOLF COURSES

For maximum residual effectiveness or for optimal control of large pest infestations, apply Acelepryn at up to 16 fluid ounces per acre (= 0.37 fluid ounces per 1,000 square feet or 0.208 lb AI/A) to control the pests listed in Table 1 below. Apply Acelepryn in sufficient water to provide optimal distribution in the treated area. Use properly calibrated application equipment that will produce a uniform, coarse droplet spray, using a low pressure setting to eliminate off target drift.

Restriction: Do not apply more than 16.0 fluid ounces (equivalent to 0.208 lb of active ingredient) of product per acre per year in broadcast applications to golf turfgrass.

APPLICATION TIMING

White Grubs: Apply Acelepryn from early April to early September for preventative and early curative control of all the major white grub species infesting turfgrass. The need for an application may be based on historical monitoring of the site, previous records or experiences, current season adult trapping or other methods. The higher rate listed for white grub control in Table 1 may be required [for early season (April and May) applications where a long residual is required or] in late August or early September when less sensitive mid-instar grubs are present at the time of application. Irrigate turf immediately after application or allow rainfall to move the product into the soil.

Turf Caterpillars: Acelepryn will provide excellent curative caterpillar control in turfgrass. To ensure optimum control, delay watering (irrigation) or mowing for 24 hours after application. If the area being treated is maintained at a mowing height of greater than one inch, then the higher rate listed in Table 1 may be required during periods of high pest pressure.

TABLE 1: Turf Application Rates

| Target Pest | Acelepryn Turf Application Rates | | |
|---|----------------------------------|---------------------------------|----------------|
| | Product (fl oz) per Acre | Product (fl oz) per 1,000 sq ft | lb AI/A |
| Turf Caterpillars (including armyworms, cutworms and sod webworms) | 2 to 4 | 0.046 to 0.092 | 0.026 to 0.052 |
| White Grubs (including Aphodius spp., Asiatic garden beetle, black turfgrass atenius, European chafer, green June beetle, Japanese beetle, May/June beetles (Phyllophaga spp.), northern masked chafer, oriental beetle and southern masked chafer) | 8 to 16 | 0.184 to 0.367 | 0.104 to 0.208 |

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24(c) Registrant:
 Syngenta Crop Protection, LLC
 P. O. Box 18300
 Greensboro, NC 27419-8300

Label Code: NY1489078AA1119

Appendix 3. ENB Standard Operating Procedure (SOP) for Sampling Surface Waters for Acelepryn Found in Local Rivers in Fairfield County, CT

East Norwalk Blue, (ENB), a 501 (c)(3) non-profit, secured a grant (June 2025) from the Sexauer Foundation with additional funding from the Surfrider Foundation, Jamie Walsh, and the Norwalk River Watershed Association to survey surface waters entering and leaving on or near ten local golf courses to measure the Imidacloprid input to local rivers. After a search of available literature, ENB decided to research a commonly held premise that some golf courses were broadcasting acelepryn on turf to eliminate grubs, resulting in residual amounts of acelepryn leaving the premises in surface waters and infiltrating nearby waterways. At present, using Acelepryn to control grubs in turf is not illegal, although New York has already banned the product across multiple counties.

The Center for Environmental Sciences and Engineering, Connecticut University:

All water samples collected by ENB are processed at The Center for Environmental Sciences and Engineering at the University of Connecticut, Building 4, Annex 3107, U-4210 Horsebarn Hill Road, Storrs, CT, under the direction of Lab Director Christopher Perkins. All surface water samples are analyzed for acelepryn and its known degradants using a modified United States Geological Survey (USGS) method, which employs graphitized carbon-based, solid-phase extraction and high-performance liquid chromatography/quantitative time-of-flight mass spectrometry (Furlong, et al., 2001). The laboratory provides all sample bottles, which are pre-cleaned sterile 250 mL, high-density polyethylene (HDPE). All samples are packed in a Styrofoam container with enough ice packs to maintain a temperature of <10 degrees C along with a completed chain of custody (Figure Ap3-4), and shipped by UPS from the ENB lab at Norwalk to the UCONN lab at Storrs. Samples are usually shipped within 24 hours after the ENB staff returns from the field.

Preparation for a sampling day in the field:

Prior to leaving for the field, the following items are prepared for taking samples.

- a. A data sheet for recording date, time, GPS, weather conditions and landmarks for reference.
- b. A detailed map of the area to be surveyed showing roads, waterways and boundary lines.
- c. Enough 250 mL sterile HDPE bottles to sample each site packed in a cooler with enough ice packs to keep the temperature at <10 degrees C. Prior to placing sample bottles in the cooler all bottles are marked at a height of 3 inches with a magic marker and fitted with a stainless-steel pipe clamp to set the depth on the test plate and help keep the bottle in place when the sample is taken when the samples are taken in the field (Figure Ap3-1). Two extra bottles are included, one for a duplicate sample and one to receive a field trip blank. The additional samples are required to meet the quality assurance aspects of ENB's SOP for field work.
- d. A 250 mL sterile HDPE bottle filled with distilled and sterile water to be used in producing a field trip blank (FTB). The contents will be transferred in the field to a second sterile 250 mL bottle for later analysis with the other samples. The results for this sample should always be zero.

- e. Extra stainless-steel clamps to secure sample bottles on the underside of the test plate when taking samples (Figure Ap3-2) and a Phillips screwdriver to adjust the clamps.
- f. A camera to take photos of each test site.
- g. A stainless-steel sampling plate that can hold two 250 mL bottles attached to an extendable handle (Figure Ap3-3) for taking single and duplicate surface water samples (Figure Ap3-2).
- h. Enough Nitrile gloves to provide clean handling for each sample in the field.

Field Trip Blanks:

Field trip blanks are taken to ensure that filtered and sterile dilution water used in the analysis of acelepryn can be taken to the field and transferred to a second sterile, HDPE bottle without producing any contamination from acelepryn when the contents are processed with the other samples in the testing sequence.

Once in the field, an ENB staff member puts on the nitrile gloves, uncaps, and transfers the sterile water from the 250 mL sterile container to a second bottle provided in the cooler to retain the FTB. Once the second bottle from the cooler is uncapped and the transfer is completed, the bottle is marked FTB, capped, and placed in the cooler where the temperature is maintained < 10 degrees C. One FTB is required for every sampling day to help ensure that sterile sampling techniques have been employed throughout the field work. Nitrile gloves are only used once to ensure sterility of each sample and then disposed of. The field trip blank is processed in a manner like the other samples, and when processed by the UCONN Lab, should show no evidence of any contamination.

Taking Field Samples of Surface Water:

Once a sampling site has been identified, and the information entered on the data sheet an ENB staff member puts on a clean pair of nitrile gloves, removes a sterile 250 mL HDPE bottle from the cooler, enters the site number on the bottle and slides the bottle with the attached pipe clamp into the opening on the sampling plate until contact is made with the pipe clamp. A second pipe clamp is then attached to secure the bottle on the underside of the plate with a screwdriver (Figure Ap3-2). The bottle cap is removed, and the sampling plate is lowered by the handle under the surface to retrieve the sample. Once the bottle is filled, the sampling plate is raised by the operator, the cap is replaced, the lower pipe clamp is removed with a screwdriver, and the bottle is removed from the sampling plate. The upper clamp is then removed, and the bottle is placed in the cooler. The nitrile gloves are removed and set aside for disposal. The ENB field data sheet is completed, and one or more photos are taken of the site.

Figure Ap3-1. Two HDPE, 250 mL sample bottles with sterile pipe clamps in place prepared for field sampling prior to being placed in a cooler with ice packs.



Taking duplicate samples of surface water:

Using the supplied nitrile gloves, both the HDPE bottles are secured in the stainless-steel sampling plate down to the first pipe clamp, and a second pipe clamp is then secured to both bottles on the underside of the plate with a screwdriver to keep the bottles from floating out of the sampling plate. The plate is then secured to an aluminum handle (Figure Ap3-2, Figure Ap3-3) and both bottle caps are removed. The sampling plate is then lowered and pushed underwater to fill both bottles. The duplicate samples are withdrawn, both bottles are capped, all pipe clamps are removed with a screwdriver, the site numbers on the bottles are verified, and the bottles are placed in the cooler maintained at < 10 degrees C. A fresh pair of nitrile gloves is used throughout each sampling event and is disposed of after each sample is added to the cooler.

After completing the last sampling site, the ENB field data sheet is reviewed and completed for date, time, rainfall history, and GPS coordinates, as well as any distinguishing landmarks that will help in future field work at the same test sites. Upon return to the ENB Lab, a chain of custody is prepared (Figure Ap3-4) and added to the cooler. The cooler is packed with ice packs and shipped by UPS to the UCONN Laboratory at Storrs, CT., for processing of the samples.

Figure Ap3-2. Sample bottles are placed in the sampling plate with bottom clamps in place. The bottle caps are then removed, and the sampling plate is lowered by the handle to retrieve a duplicate sample.



Figure Ap3-3. The extendable aluminum rod is used to lower the sampling plate with the attached bottles into the surface waters at the test site. A loop on the handle allows for an extra line to lower the unit from greater heights as needed.



Figure Ap3-4 Chain of custody record for transfer of ENB surface water samples to the Center for Environmental Sciences and Engineering at UCONN.

| CESE CHAIN OF CUSTODY Center for Environmental Sciences and Engineering University of Connecticut 3107 Horsebarn Hill Road; U-4210 Storrs, Ct 06269-5210 Phone: (860) 486-4015 environment@uconn.edu | | Analytical Turn Around Time (TAT) | | | Page _____ of _____ | | |
|---|--------------------|-----------------------------------|---|---------------|---------------------|--|-------------------------------|
| | | Standard | Expedited (Prior Lab Approval Required) | Lab Approval | Quotation Number | | |
| | | 28 Day | 14 Day | 7 Day | | | |
| | | Regular Price | 25% Surcharge | 50% Surcharge | Signature | | |
| Company/Department | Project Contact | | Billing Contact | | | | |
| Project | Phone/fax | | Phone | | | | |
| Address | E-Mail | | E-Mail | | | | |
| City | Reporting Request | | Purchase Order/KFS Number | | | | |
| State | Zip | | email/pdf | | | | |
| SAMPLE TRANSFER (sign below) | | | | | | | |
| 1. Relinquished By: | | Date: | 3. Relinquished By: | | | | |
| (print/sign) | | Time: | (print/sign) | | | | |
| 2. Received By: | | Date: | 4. Received By: | | | | |
| (print/sign) | | Time: | (print/sign) | | | | |
| Storage Location: (W = Walk-in, M = Metals, N = Nutrients, O = Organics) Refrigerator #: | | | | | | | |
| Field Number | CESE Laboratory ID | Collection | | Matrix | Preservation | Number of Containers | Comments/Special Instructions |
| | | Date | Time | | | | |
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| 3 | | | | | | | |
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| 20 | | | | | | | |
| Please Circle One: NON-HAZARDOUS HAZARDOUS HIGHLY CONTAMINATED UNKNOWN | | | | | | Matrix: DW = Drinking Water, NW = Non-Potable Water, SW = Sea Water, L = Liquid (other) | |
| *****If needs to be preserved add P next to preservation code***** | | | | | | S = Solid, SO = Soil, F = Filter, T = Biological Tissue, O = Other | |
| It is the client's responsibility to check for accuracy prior to relinquishing samples. | | | | | | Preservation: R = Refrigerate (4°C), F = Freeze, N = Nitric Acid, H = Hydrochloric Acid, S = Sulfuric Acid | |
| By executing this COC, the client has read and agrees to be bound by CESE's Terms & Conditions | | | | | | M = Methanol, MC = Methylene Chloride, TR = Trizma, O = Other, N/A = None Required | |

Conclusion

ENB believes that the approach outlined in this SOP is a reasonable approach to quality assurance and preserving the integrity of Acelepryn as found in the environment. The use of an all-metal fixture with metal pipe clamps, as well as using a dedicated pair of nitrile gloves for handling each sample, should help provide a true assessment of acelepryn concentrations in surface water samples. In addition, the short interval between gathering samples and shipping them by UPS to the UCONN Lab should help keep samples from changing due to extended holding times.

A paper by Richard Harris, Grayson Schottmuller, and Peter Fraboni.