



ACTion
with communities
in cumbria

The Lake Annecy Story





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in cumbria

ACTion with communities in cumbria

champions community and rural issues



**Fran Richardson,
Carole Barr &
Lorraine Smyth**



ACT champions community and rural issues



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Welcome

**Thanks for coming,
and to those who are joining us online**

A note on format and etiquette



ACT champions community and rural issues



ACT is working with people who live here to have a voice in the [Love Windermere Partnership](#).



We support communities and agencies to have difficult conversations in a different way.



ACT champions community and rural issues



South Cumbria Rivers Trust
are offering to support a
Community Catchment
Partnership approach for
the Windermere and Leven
Catchment.

For more information
contact admin@scrt.co.uk

www.scrt.co.uk/news/new-windermere-community-partnership/



ACT champions community and rural issues



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The Lake Annecy Story

Stanley Root

www.lakeannecystory.com



ACT champions community and rural issues

The Saving of Lake Annecy a brief history

19 July 2023
Windermere
J. Stanley Root

Big thanks to the people at SILA:
Chief Information Officer - [Gwladys Perrillat](#)
Director environmental services - [Damien Zanella](#)
Président - [Pierre Bruyère](#)

A story that deserves to be told

- This is a story from a distant past:
 - Long before environmental campaigns were daily news.
 - Before there was a Minister of Environment in France, or anywhere in the world.
 - Before Rachel Carson published 'Silent Spring'.
 - Before there was a generally accepted concept of “the environment”: i.e. the world as a fragile, limited resource threatened everywhere by the depredations of human industry.
 - And well before the word ‘**eutrophication**’ was known to any but professors of limnology.
- One ordinary citizen launched an environmental campaign
 - A comprehensive campaign: prevent pollution, conserve a drinking water resource, safeguard a thing of beauty, ensure access, demand investment in large scale construction.
- It took 13 years of struggle to raise the awareness necessary for the community to take serious action
 - Comprising speeches and articles, local media, alliances, engaging high level political support, participating in local politics, and, above all, scientific study
- And 19 years of complex, challenging construction work to save the lake
 - Overcoming huge, political, organisational, technical, legal and financial obstacles
- The result: The first ever successful, comprehensive, citizen-led environmental campaign in France

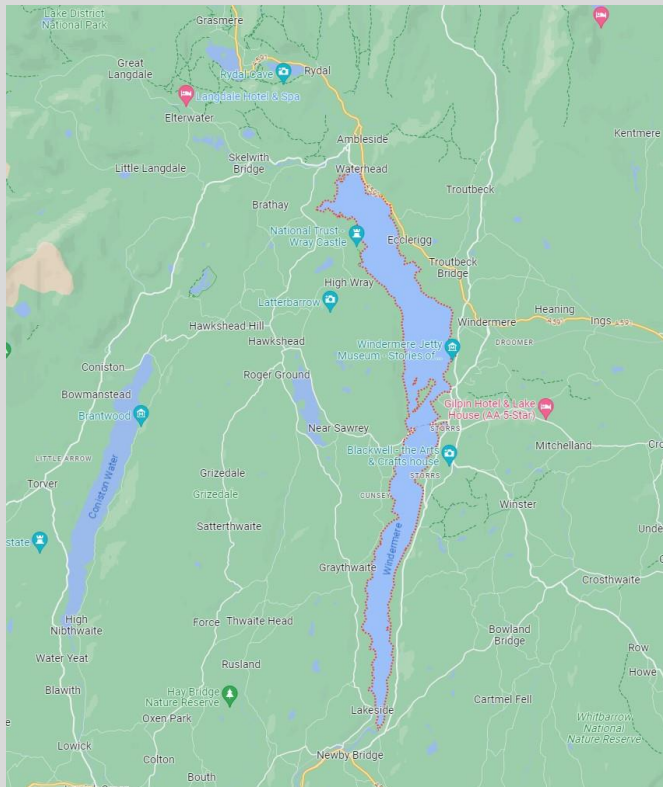
In July 1976, Jacques Chirac, Prime Minister, and later President, of France, praised the work

The protection of natural sites is the second essential aspect of an effective environmental policy. On this point too, I say without flattery, Haute Savoie can serve as a benchmark. What has been achieved in Annecy remains exemplary.

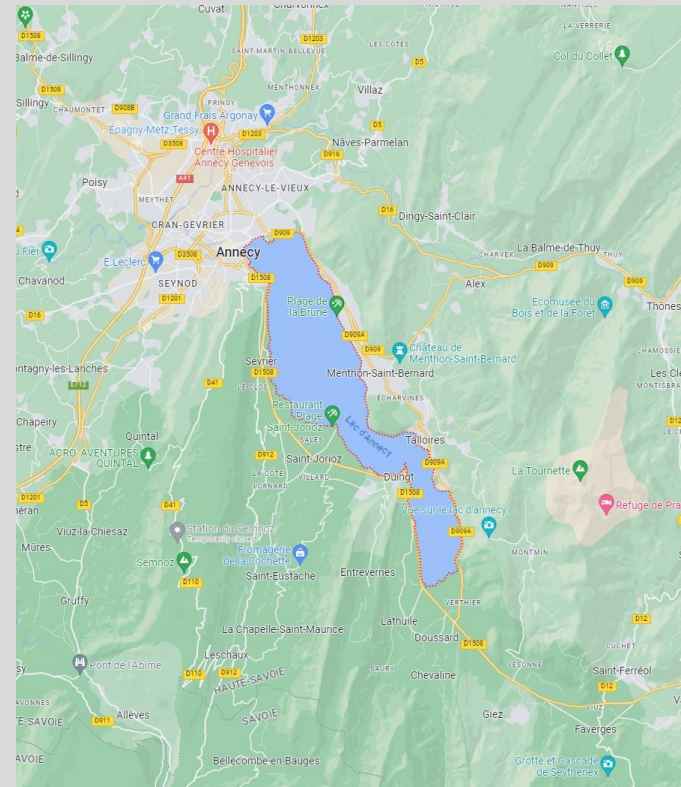
The recovery of the lake and its new-found transparency cannot fail to amaze even the most skeptical. Even more important, I believe, is the educational value of this spectacular lake, as you only have to go to the shores of the safeguarded waters of Lake Annecy to be convinced that ecology is not just a subject for academic debate. Success is possible.

Of course, it had to be earned, and I don't underestimate the audacity, perseverance and spirit of cooperation it took for the various local authorities involved to achieve the goal. But the proof is there for all to see.

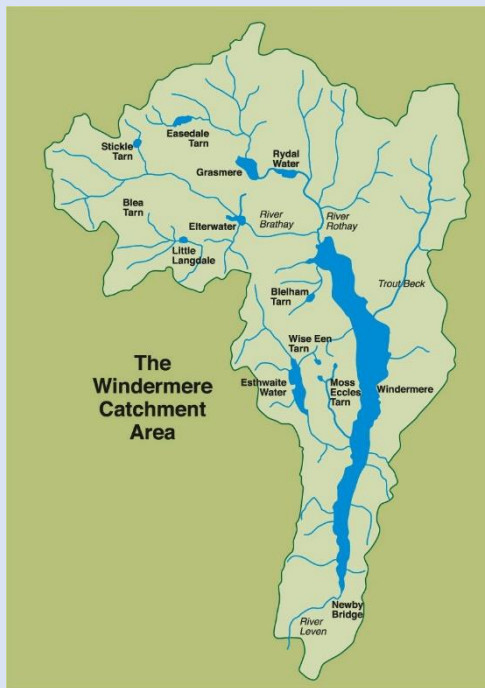
17,000 years old
Volume 300 billion litres
L 18 km W 1.5 km D 64 m
Area 15 km² Elevation 39
Residence time 9 months



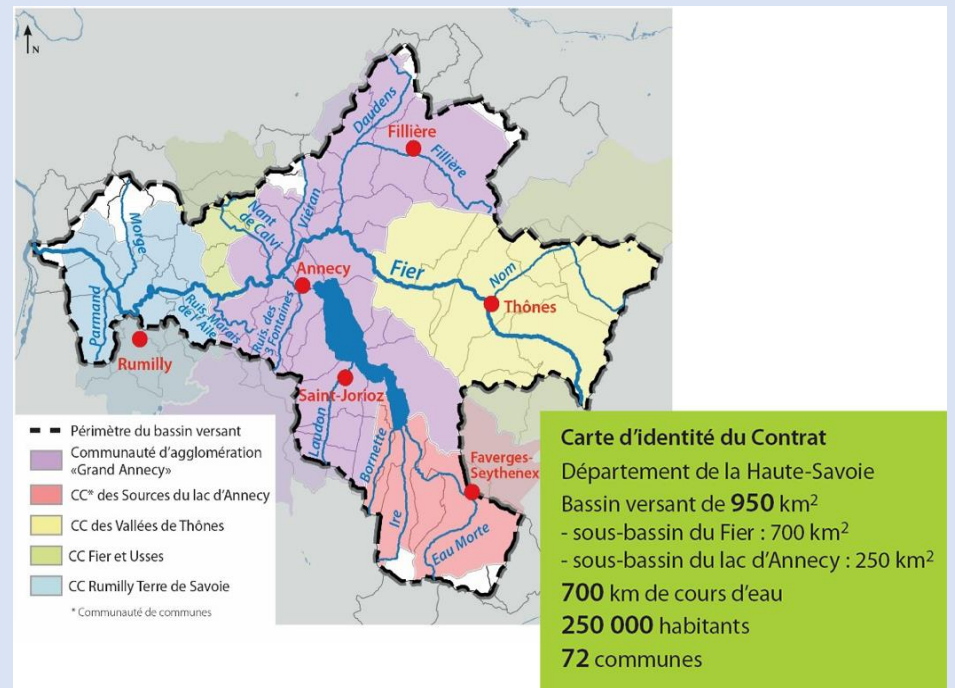
18,000 years old
Volume 1,124 billion litres
L 15 km W 3 km D 65 m
Area 28 km² Elevation 446 m
Residence time 4 years



Catchment area 230 km²
Population 17,500



Catchment area 950 km²
Population 250,000





Lake Annecy
View from the port at Saint-Jorioz



Same place, looking down

What was the problem?

Human induced eutrophication



- Lake Annecy was used as the town's rubbish tip
- Old cars, hotel toilets, rotting meat were dumped there
- And local sewers drained into the lake, overloading it with nutrients, especially phosphate and nitrogen
- Causing cyanobacteria to flourish & 'bloom'
- Which first cut out sunlight to the lake, killing life below
- Then, as it quickly died, sank and decomposed, extracted oxygen from the water, asphyxiating what life was left
- and, to make matters worse, produced toxins which kill dogs and attack the liver and nervous systems in humans
- Meanwhile, the faecal matter infected swimmers with E.coli and Hepatitis A Virus, causing intestinal infections, norovirus, nausea, vomiting, fever, diarrhoea, skin rashes, ear and eye pain
- and so on

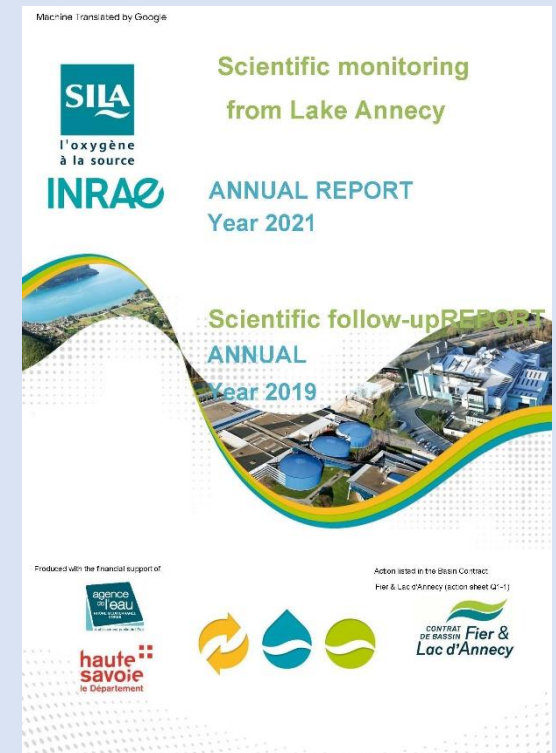


So who was Dr Paul Louis Servettaz?

- He was a young doctor assigned to Annecy's main hospital, fresh from attending to the victims of German bombing of Thones
- Being a doctor, he loved science and was fascinated by the ideas of circulation and the equilibrium of complex systems. Water was for him water not just the essential ingredient for but a miracle of nature.
- Given his passion for nature and water in particular, unsurprisingly he took up the hobby of diving
- Then one day shortly after the liberation of France, as he looked forward to a life of peace and public service, a visit to the lake was to change his life

The Chronical of the Safeguarding of Lake Annecy is not an easy read!

- Not because it is in French and out of print
- The first 135 pages are not about the safeguarding of Lake Annecy
- The first 100 pages are not even about Lake Annecy
- They are about Science.
- A passionate treatise on Ecology. From the magical properties of water upon which all life depends, to the complex web of chemical and biological interactions which has evolved over millennia into the wonderful equilibrium we see today.
- Now being destroyed in decades by reckless human industry.
- Page 95 culminates with his “*caracteristiques schematiques*” - a table of data to determine the health of a lake.
- He had a vision of how, if it were properly managed, a lake would be regularly subject to such analyses to determine its health and identify what actions were needed to protect it.
- His vision in 1944, and subsequent research and campaigning for the next twenty years, were the inspiration for what were to become annual reports of scientific monitoring of the lake by the French national research institute, INRAE



How to measure the health of a lake [“Schema of characteristics” p.95]

	Example	Measurement Methodology	Oligotrophic	Eutrophic
Physical properties				
1. Temperature				
2. Clarity / Turbidity		Secchi depth	4 - 8 metres	< 2 metres
3. Conductivity				
4. Dissolved Oxygen				
5. Alkalinity / Acidity				
6. Nutrients				
7. Pollutants				
Biological properties				
8. Fish				
9. Macro-invertebrates				
10. Zooplankton				
11. Phytoplankton	Cyanobacteria, Chrysop	µg/litre/ depth	2.5 - 8	8 - 25
12. Bacteria - toxins				

How to measure the health of a lake [“Schema of characteristics” p.95]

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Physical properties				
1. Temperature				
2. Clarity / Turbidity		Secchi depth	4 - 8 metres	< 2 metres
3. Conductivity				
4. Dissolved Oxygen		mg/litre, depth, season, year	6 - 10	< 4
5. Alkalinity / Acidity				
6. Nutrients	e.g. Total Phosphorus	$\mu\text{g}/\text{litre}^{-1}$	0 - 12	24 - 96
7. Pollutants				
Biological properties				
8. Fish				
9. Macro-invertebrates				
10. Zooplankton				
11. Phytoplankton	Cyanobacteria,	$\mu\text{g}/\text{litre}/\text{depth}$	2.5 - 8	8 - 25
12. Bacteria - toxins				

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Physical properties				
1. Temperature				
2. Clarity / Turbidity		Secchi depth	4 - 8 metres	< 2 metres
3. Conductivity				
4. Dissolved Oxygen		mg/litre, depth, season, year	6 - 10	< 4
5. Alkalinity / Acidity		pH scale	7	< 7
6. Nutrients	e.g. Total	$\mu\text{g}/\text{litre}^{-1}$	0 - 12	24 - 96
7. Pollutants				
Biological properties				
8. Fish	e.g. Perch, Roach,	Species and number of fish	Noble fish	White fish
9. Macro-invertebrates				
10. Zooplankton				
11. Phytoplankton	Cyanobacteria,	$\mu\text{g}/\text{litre}/ \text{depth}$	2.5 - 8	8 – 25
12. Bacteria - toxins	E. coli, Hepatitis A,	Colony forming unit / litre	< 24	> 57

National Research Institute for Agriculture, Food and the Environment – report outline

	Example	Measurement Methodology	Oligotrophic	Eutrophic
Physical properties				
1. Temperature		° Celsius, Location, Depth, Season, Year, Trend	Cooler	Warmer
2. Clarity / Turbidity		Secchi depth	4 - 8 metres	< 2 metres
3. Conductivity		Microsiemens / cm	100 - 2000	>2000
4. Dissolved Oxygen		mg/litre, depth, season, year	6 - 10	< 4
5. Alkalinity / Acidity		pH scale	7	< 7
6. Nutrients	e.g. Total Phosphorus	µg/litre ⁻¹	0 - 12	24 - 96
7. Pollutants	e.g Oil, Metals, Poisons	mg/litre		
Biological properties		Total biomass kg/hectare by depth	Variety of species	Phytoplankton dominates
8. Fish	e.g. Perch, Roach, Char	Mass in gm/ hectare	46.5	lower
9. Macro-invertebrates	Chironomidae, Ostracods	Ind./ m ²		
10. Zooplankton	Herbivorous, Predatory	Ind./ litre ⁻¹		
11. Phytoplankton	Cyanobacteria, Chrysophyceae	µg/litre/ depth	2.5 - 8	8 - 25
12. Bacteria - toxins	E. coli, Hepatitis A, Poliomyelitis	Colony forming unit / litre	< 24	> 57

The latest 60-page INRAE report covers current and long-term trends

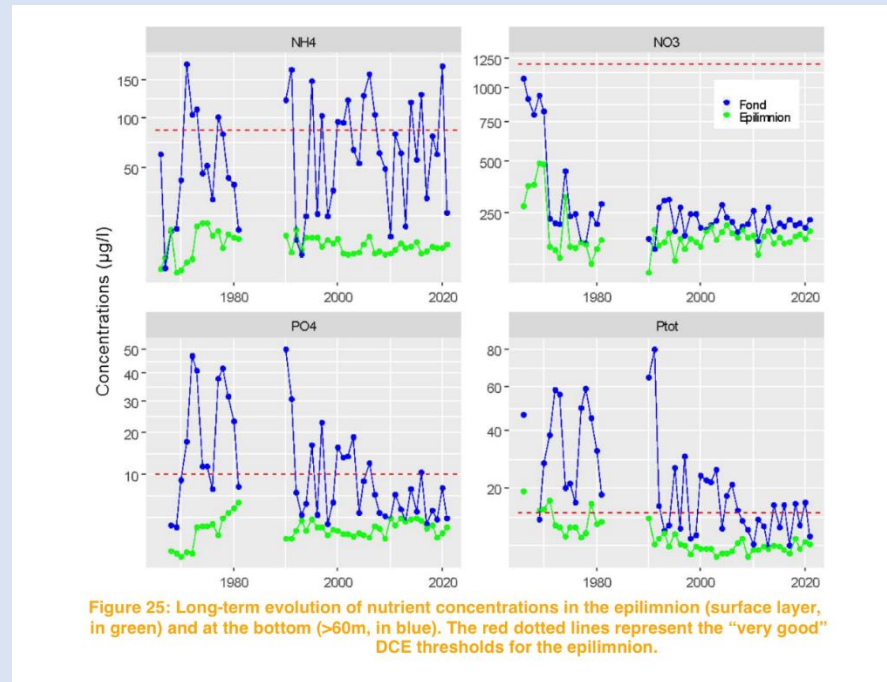
- Graphs from the 2021 report show results since the beginning of measurement in 1996, through completion of the sewer in 1976, to present day

• Blue = lake bottom Green = surface layer

- There are gaps in the 1980s and significant fluctuations year on year, and other factors to consider, making interpretation not straightforward

- However, figure 25 shows, amid fluctuations, a clear trend over the past thirty years of a decrease in nutrient concentrations, including Ptot (total phosphate) one of the key drivers of algae blooms

- Demonstrating Lake Annecy's "very good" status



But all that was way, way in the future.
Now it is 1944 and Dr Servettaz is faced with a mountain to climb

- His biggest problems were :

- Ignorance

- Apathy

- ***Hostility***

- Hostility, in particular, came from all quarters:
 - Annecy town hall
 - Department of health
 - Mayors of communes around the lake
 - Industry
 - Tourism industry in particular
 - Hotels especially
 - Property developers
 - Property owners
 - Ordinary citizens' hostility to change

“There was no miraculous solution to saving the lake, nothing supernatural, just long-term human actions whose chronicle deserves to be reported” P. 135

“My whole life has been marked to this day by this great admiration for this site, which partly explains my later protective attitude towards it, a natural, self-evident, uncalculated chain of events towards this masterpiece of nature: these are the original, emotional motivations for my action.”

“It had a major influence on my destiny. Later, it became the focus of my professional joys, and my sporting hobbies (swimming, boating, scuba diving), gradually leading me towards obligations and duties towards it and the local community, a sequence I had no idea existed in my adolescence.” P136

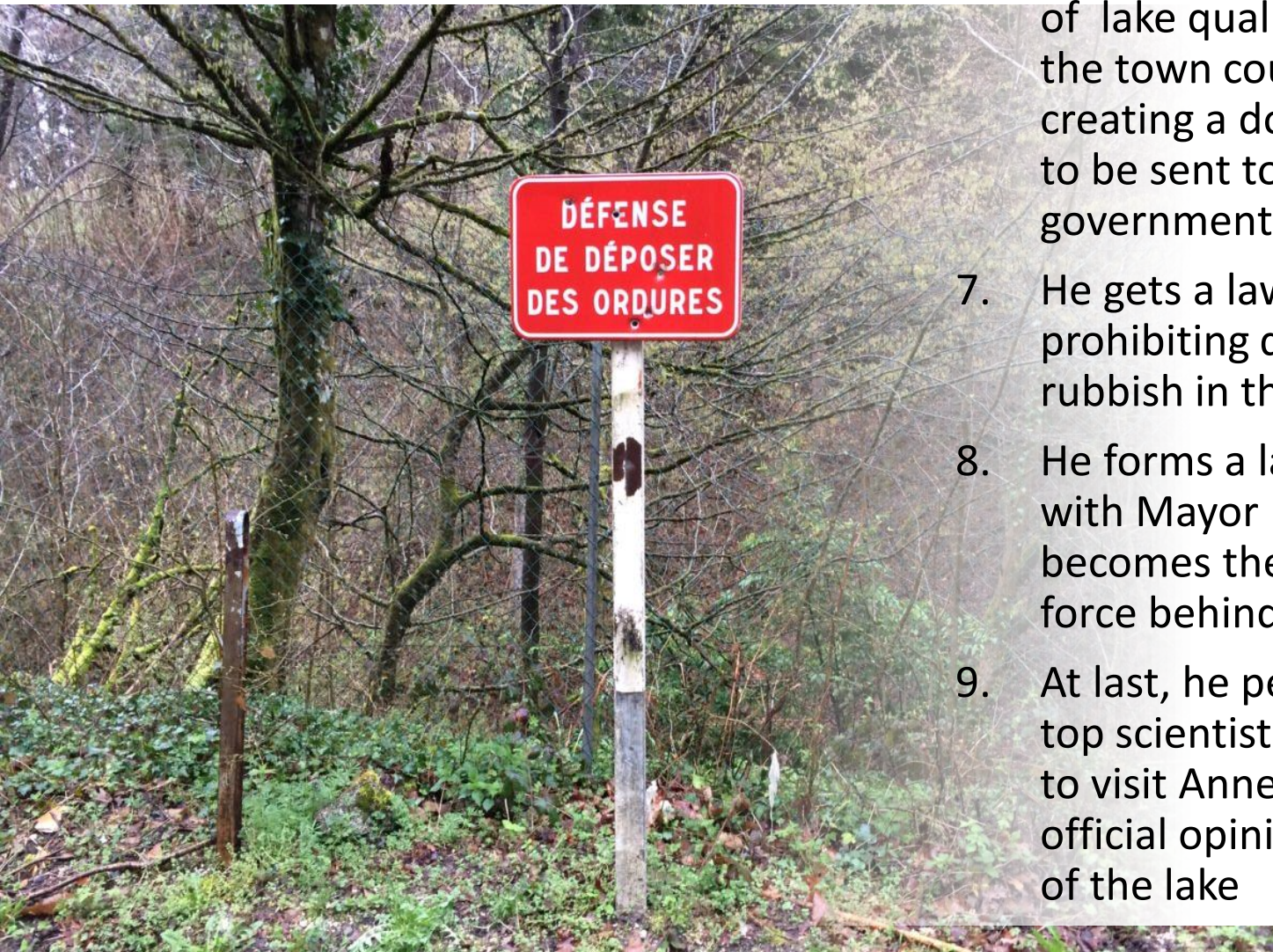
“Everyone firmly believed in the fixity of the lake and its unalterable qualities; it had been there, they said, untouched since the last ice age, and so it will remain, unchanging until the end of time! ”

“I protested against this inconceivable naïveté, much of it coming from "intellectuals", but it has to be said, I had no success and a desert surrounded me.” P140

Dr Servettaz was always thoughtful, informed, polite, persuasive



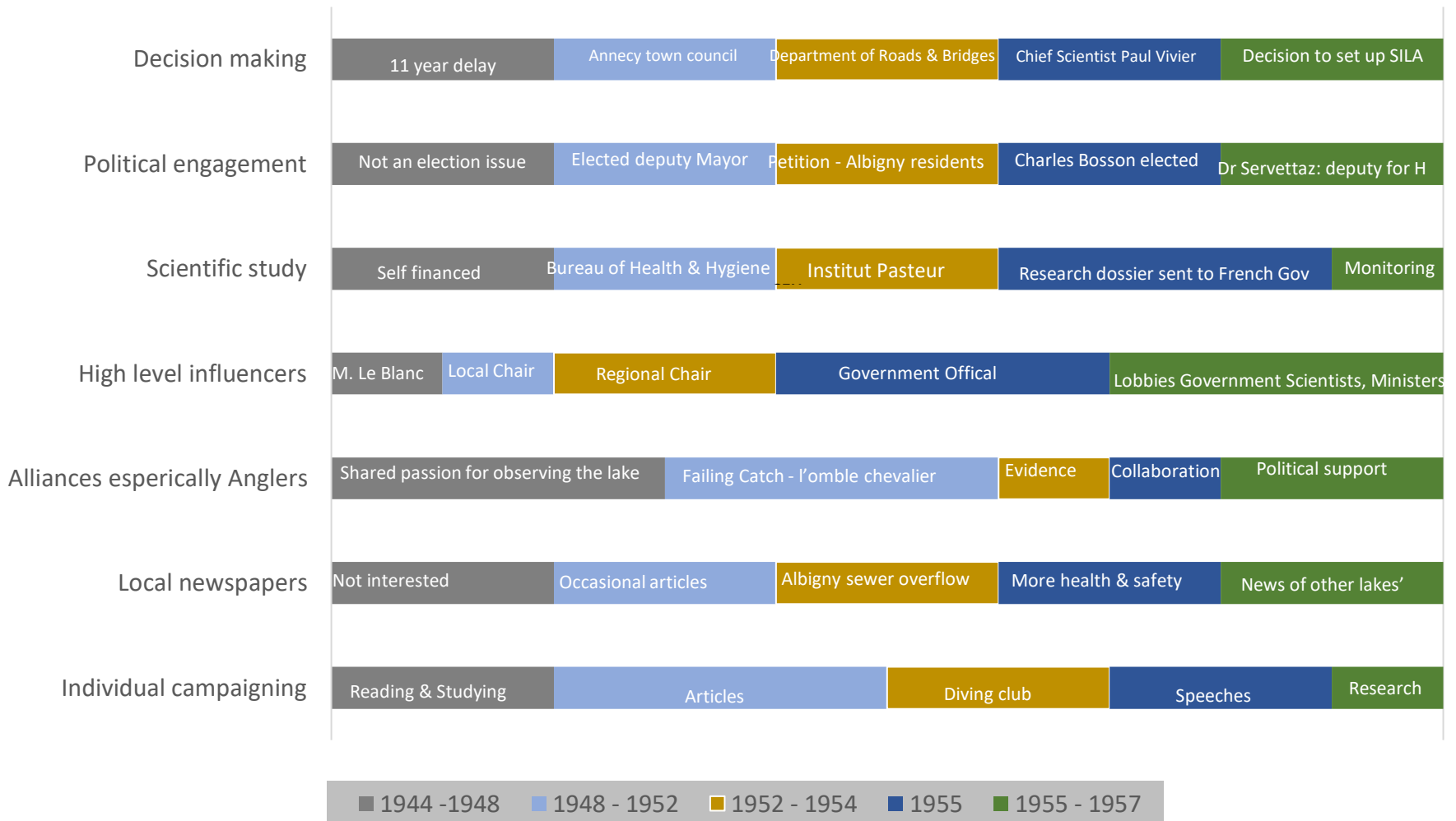
1. He reads avidly every book he can find on the trophic state of lakes
2. He talks to everyone and anyone, explaining the science behind what is happening to the lake
3. He forms a diving club and scours the lake for evidence of pollution which they then publicise
4. He enlists allies, most importantly the local and regional Angling clubs
5. He is elected deputy mayor responsible for health & hygiene - to win a platform for his ideas



6. He personally finances studies of lake quality, and then gets the town council to do more, creating a dossier of evidence to be sent to the federal government.
7. He gets a law passed prohibiting dumping of rubbish in the lake
8. He forms a lasting friendship with Mayor Bosson who becomes the political driving force behind the campaign.
9. At last, he persuades France's top scientist - M. Paul Vivier - to visit Annecy and give his official opinion on the future of the lake

The 'snowball effect' of his campaign 1944 - 1957

Driving public awareness and political will



5th February 1955 - the turning point in the whole campaign

- Dr Servettaz, supported by Mayor Bosson and president of the Angler's society Louis Blanc, (and a dossier of damning lake studies he had got the city to send to the government) finally arranged an official visit by leading government scientist Paul Vivier.
 - Vivier met with the Mayor, city engineers, health officials, elected representatives
 - Finally, he was invited to address a working breakfast, following the AMG of the Regional Anglers' society, and give his verdict on the state of the lake.
- Paul Vivier:

“Mr. President, Louis Blanc, and Dr. Servettaz, your deputy, were right, each in their own way, to fight for the protection of a lake which, as we now know, is very sick. You have, Mr. Mayor, a maximum of 15 years to save it; if nothing is done by then, it will become a dead lake.”

A scenic landscape photograph of Lake Annecy. In the foreground, a wooden pier with many vertical posts extends into the water. The middle ground shows the calm surface of the lake, with a small yellow buoy visible. In the background, a large mountain range is partially obscured by a thick layer of white mist or low clouds. The sky is overcast with grey clouds. The overall mood is serene and atmospheric.

The Safeguarding of Lake Annecy

End of Part One

A scenic view of Lake Annecy, France. The foreground is dominated by a dense field of tall, dry reeds. The water is calm, reflecting the surrounding landscape. In the middle ground, a small town with white buildings and a church is visible on the left bank. The background features steep, forested mountains with patches of snow on their peaks under a clear blue sky.

The Safeguarding of Lake Annecy Part Two

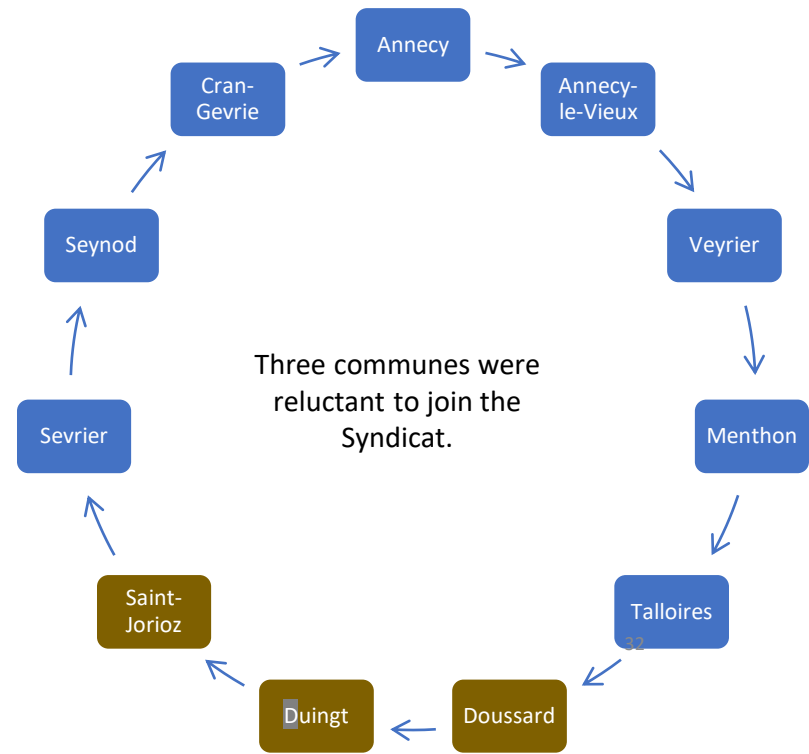
Legal status of lake Annecy and its rivers

Responsibility for the lake was fragmented [P. 123]



1955 -1957 The solution: communities came together to form the Syndicat Intercommunal du lac Annecy (SILA)

- Individual communes were asked to sign up
- But there was reluctance: jealousy of Annecy, fear of the expense, wish to avoid disruption, disagreement that the whole project was worth it, didn't understand the science
- M. le general Doyen, Mayor of Veyrier, war hero, made sure they all signed up in the end!
- *“The primary objective was to convince the communes around the lake, theoretically the ones who should be most concerned, to take an interest in this large-scale program. We had to persuade their elected representatives of the absolutely fundamental need for us all to unite to save the lake.”*



But what exactly is SILA?

It is not a private company. It is a community owned enterprise.

1. It manages a catchment area of 950 sq km, 700 rivers, 71 communes and a population of 250,000
 2. 1300 km of sewer mains (of which only 500 are combined), 99 pumping stations and 12 wastewater treatment plants
 3. Financed through customer billings, plus government subventions for investment
 4. Administered by a president, 14 vice-presidents and 52 delegates representing the communes. Permanent staff of 150
- **Wastewater treatment**
 - Since 1997 has operated a new wastewater treatment plant called SILOE at Cran-Gevrier on the river Fier
 - **Solid waste disposal**
 - Since 1986 has operated solid waste treatment, electricity generating, plant Sinergie
 - **Protection of the Lake**
 - Cultivating reed beds
 - Managing access to the lake
 - **Management of catchment area**
 - Managing flood risk
 - Maintaining a nature reserve by the lake

But all that is way, way in the future. Now it is 1957, and SILA is faced with a mountain to climb

- Coming up with a solution in principal
- Getting eleven independent communes to commit to the project
- Designing: wastewater plant & sewer main
- Financing: Beg, borrow and tax
 - Federal government
 - Bank borrowing
 - Local taxes
- Constructing: Building wastewater plant
- Planning permission and property rights
- Technical: Laying pipes & pumping stations
- Maintaining popular support



The two solutions they considered and how they reached a decision

“Either we could proceed, as the Department of Bridges and Roads had already suggested, with the total purification of all wastewater before discharge into the lake.

A difficult solution, at the very least very incomplete, uncertain, costly and of dubious effectiveness.

As the numerous wastewater treatment plants to be set up could only be small, precarious and difficult to monitor and maintain, and we would miss the opportunity of a complete solution and the future of the water would remain uncertain.”

“Or we could collect all the wastewater in a sewer encircling the 2 shores of the lake, and take it downstream to be treated in one large wastewater treatment plant before being discharged into the river Fier .

The cost of construction for both projects was similar, but the security provided by this second project (fewer bigger, stronger, pieces of equipment) meant that it could be operated more cheaply.”

Work gets underway, at last!

- *“On January 10, 1958, Mr. Vivier communicated to the Mayor of Annecy, via the Bureau de Hygiene, the results of tests at the outlet of the town's sewers before its confluence with the river Fier.*
- *The pollution assessed by the Angling Federation's mobile laboratory on September 24, 1957 was **catastrophic** for the waters of the Fier.*
- *Once again, it concluded that a wastewater treatment plant was urgently needed. Finally work began on construction on 12 February 1962. ”*
- *“From this treatment plant, two separate sewage collectors traversed the city to reach the right and left banks, progressing upstream at a gradient of 3 millimetres per section, gradually coming into operation, section by section, enveloping the banks like a horseshoe, augmented up by pumping stations when the terrain demanded - 14 of them were needed!*
- *A masterpiece of sanitation more than 41 kilometers in length.*
- *In parallel a series of communal sewers was built to connect to it. ”*

The long and laborious work of construction

- The state contributed around 40% of the costs and the rest were shared between the town of Annecy and the communes in proportion to population. Long term loans were obtained at relatively cheap rates.
 - But while the work was being undertaken, the condition of the lake was becoming noticeably worse!
 - The work was finally completed only in 1976. All this time was stressful for all those who wanted it completed as soon as possible!
- *“The circular sewer collector was the ideal sanitary cordon, but it took such a long time to install! The danger is in the delay! What would happen to our good water in 2 decades' time?”*
 - *Time was of the essence. The rapid increase in the number of local residents was accelerating, as was the density of summer hotels and campsites.”*

The wider implications of the initiative, how it spread to other lakes

- People came from far and wide to see the example of their work.
- Not least because over the years SILA was inventing the new Science of Lake Management.

- **Science of Lake Management**

- **Investing in wastewater infrastructure**
 - Biomethane plan
 - Storm overflow basins
- **Conservation of nature**
 - Protecting the reed beds
 - Nature reserve
- **Access to lake**
 - Beaches
 - Boats
 - Swimmers
 - Cycle path round the lake
- **Education**
 - for schoolchildren
 - Site Visits Press releases, citizen education
- **Community liaison**
 - Quarterly meeting of stakeholders, fishermen, boaters, waterski schools, paddleboards, property owners, tourist industry

Continuing work of SILA Investing in wastewater treatment

Constructing a biomethane plant to capture energy



Building a storm overflow basin

Unreleased for the following reasons: confidential



PRESS RELEASE

Thursday March 25, 2021, Crin Gevier

1500 m³ storm overflow basin at Duingt - part of SILA's environmental protection programme

The Syndicat Mixte du Lac d'Annecy (SILA) ensures efficient and innovative treatment of wastewater, thanks to a collection network designed in particular to avoid storm overflows and guarantee environmental protection. The development of this network is marked this week by the finalization of a storm basin, carried out in consultation with the municipality of Duingt, designed to relieve local drainage systems when, during storms, the volume of water to be evacuated is excessive.

Overview of our strategy for waste water management

After a diagnosis and in-depth studies in order to manage overflows from the wastewater network during prolonged episodes of torrential rain on the left bank of Lake Annecy, SILA launched in 2019 the construction of a storm basin sunk into the ground in Duingt. It has been operational since mid-March 2021.

This storage-retention basin is intended to capture and temporarily conserve water during bad weather, before returning it to the collection network when things calm down. It has been designed in such a way as not to create any nuisance for local residents.

This basin, costing 1.9 million euros excluding tax (subsidised to the tune of 750,000 euros by the Rhône Méditerranée Corse (RMC) Water Agency and 886,200 euros by the Département de l'Ain (Savoie) is part of a more substantial work program on the left bank of the Lake Annecy, in particular in the municipality of Saint-Jorioz, as part of the SILA heritage management policy (see insert on second page).

The location of the site is adjacent to a municipal project to create a landscaped parking area, to secure the parking of vehicles for beach users during the summer period. A part is directly situated on the storm basin.

SILA Press release Thursday, March 25, 2021 |
Communication department - Anna.Costege@lacannecy.fr | Tél : 04 50 66 77 77 www.sila.fr



Continuing work of SILA

Cultivating reed beds, protecting a nature reserve



Continuing work
of SILA
Schools –
Lakeside
expeditions and
classroom talks



Continuing work of SILA

Enhancing access to the lake



A story that deserved to be told

- A story from a time before there was any generally accepted environmental awareness
- One extraordinary citizen launched an unprecedented environmental campaign
- 13 years of study, scientific and political struggle raised sufficient awareness for action to be taken
- 19 years of almost impossibly challenging construction work for a relatively small community
- The result: The first ever successful, comprehensive, citizen-led environmental campaign,
- in history.

Robert Muller, Deputy General
Director of the United Nations,
wrote to Dr Servettaz
on August 15, 1973

Your book reflects the 3 secrets of success: love, solidarity and a certain vision of the future. If you only knew how these 3 precepts are also the key to success in international affairs! Love for our planet is insufficient. Solidarity between nations is insufficient, and instead of a vision of the future, governments have their noses pressed up against their petty interests and daily squabbles.

My dream is that the United Nations will soon become the "International Syndicate of Human Communities of Planet Earth" like the "Syndicat Intercommunal des Communes Riverains du lac d'Annecy." We're getting there, little by little, but at too slow a pace to be able to cope with the global problems that are sweeping across our planet and that will eventually affect every last individual. Annecy's success is a source of inspiration and emulation.

I will do my utmost to make it known to as wide a circle as possible.



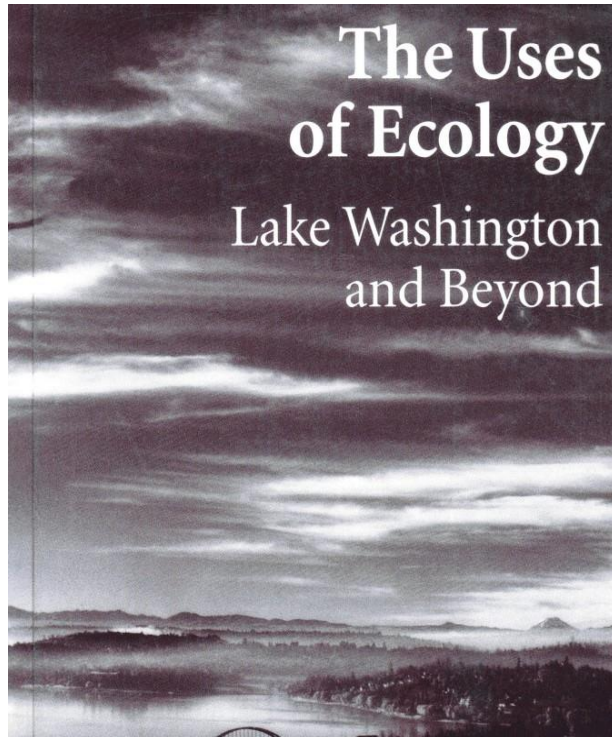


Promenade Docteur Paul Louis Servettaz

Thank you for
listening

Questions?

- Some links
- www.sila.fr
- www.lakeannecystory.com
- Abebooks.co.uk L'EAU, VIE D'UN LAC ALPIN
- Abebooks.co.uk The Uses of Ecology: Lake Washington and Beyond



The Story of Lake Annecy is the Story of Lake Washington!

At a lake 10,000 km distant
And at the same time, 1954 - 1966
A scientist and a local Mayor
Identified the threat of eutrophication
Raised the alarm
Overcame the same ignorance, apathy and hostility
Formed an association of local towns, called Metro
Built a sewer mains around the lake
Became a paradigm for saving a lake
Awarded best town in America
King County has little contact to this day, with
Annecy

Water and land services
Lakes

[Lakes of King County](#)

[Lake Geneva](#)

[Lake Sammamish](#)

[Lake Washington](#)

[Lake Washington story](#)

[Home](#) [Services](#) [Environment](#) [Water and land services](#) [Lakes](#) [Lakes of King County](#) [Lake Washington](#)

Lake Washington

King County, Washington

[Lake Washington water quality monitoring data](#)

Overview of the lake including water quality graphs and data, and general metrics and statistics characterizing Lake Washington.

- [Water quality data, Lake Washington buoy](#)
- [Weather data, Lake Washington buoy](#)

[Lake Washington story](#)

The big picture story about Lake Washington, its problems with phosphorus pollution and factors that degrade the lake's water quality.

[Greening your shoreline](#)

A tool for lakeshore property owners on Lake Washington and Lake Sammamish to improve shorelines for people and salmon.



Related information

- [Cedar River - Lake Washington Watershed](#)
- [Lake Sammamish information](#)
- [Environmental services](#)

Related agencies

- [Dept. of Natural Resources and Parks](#)
- [Water and Land Resources Division](#)
- [Parks and Recreation Division](#)

News and announcements

Jun. 29, 2022

External report, KING5 News

[As King County beaches get busy, scientists monitoring water quality](#)

[» Archived Lake Washington news](#)

Water quality data

[Swimming beach bacteria and algal toxin levels, and water temperature](#)

Contains a map depicting the locations of current swimming beach sampling stations in King County. To view the current bacteria and temperature data, either click on the map or select from the list of beaches. It also contains links to archived data.

[Real-time combined sewer overflow status](#)

Look up the status of sewer overflows along Lake Washington and other locations in the Seattle area.

[Tributary stream water quality data](#)

- [Cedar River](#)
- [Coal Creek](#)
- [Fairweather Creek](#)
- [Forbes Creek](#)
- [Juanita Creek](#)
- [Kelsey Creek](#)
- [Lyon Creek](#)
- [May Creek](#)
- [McAlear Creek](#)
- [Thornton Creek](#)
- [Yarrow Creek](#)

Parks, trails and recreation