

Outdoor Summer Keeping

Michael Köck

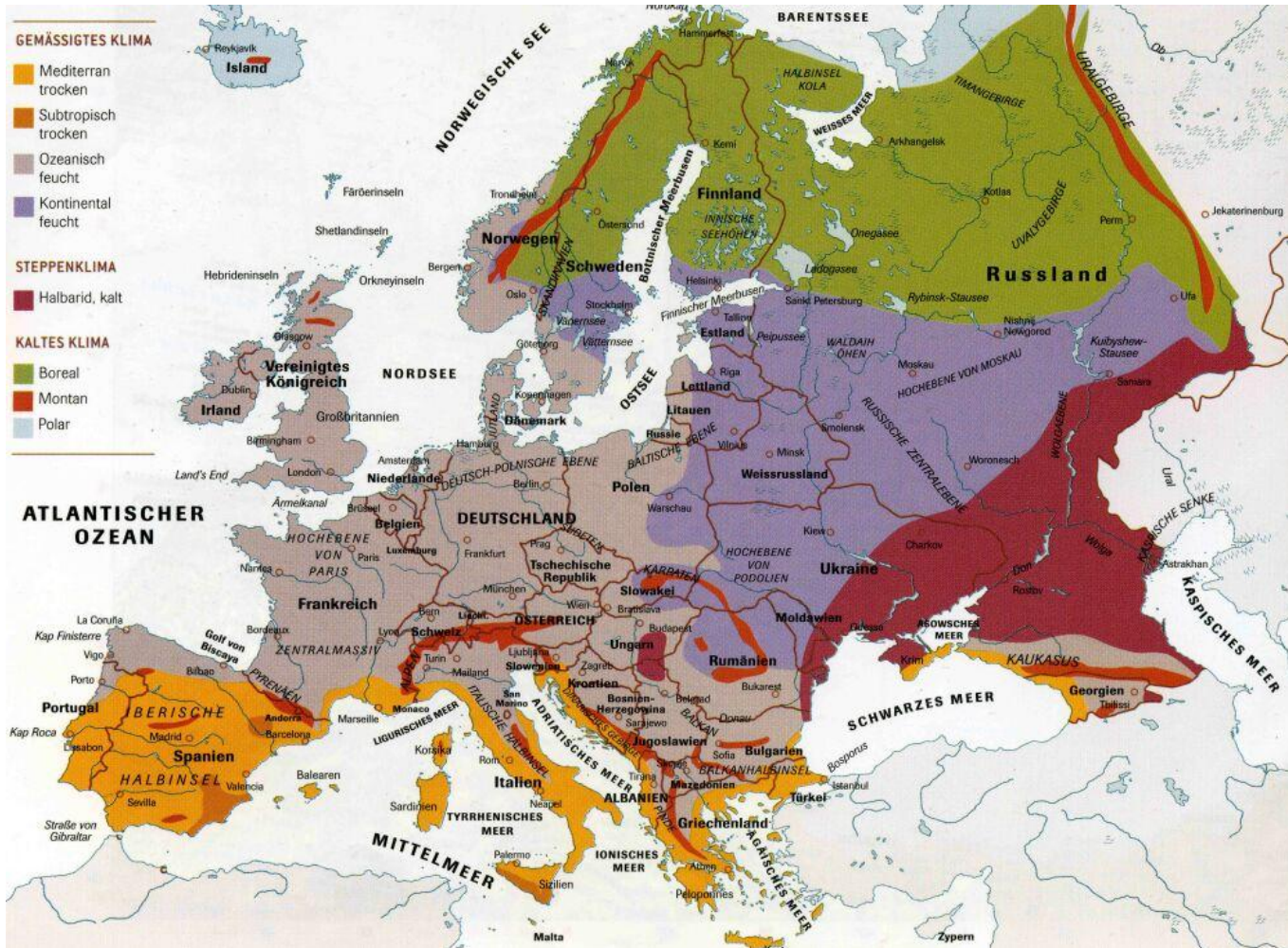




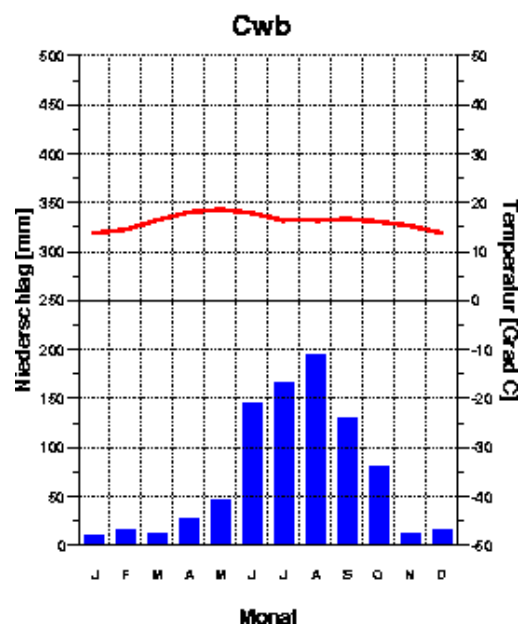


ESTADOS UNIDOS MEXICANOS

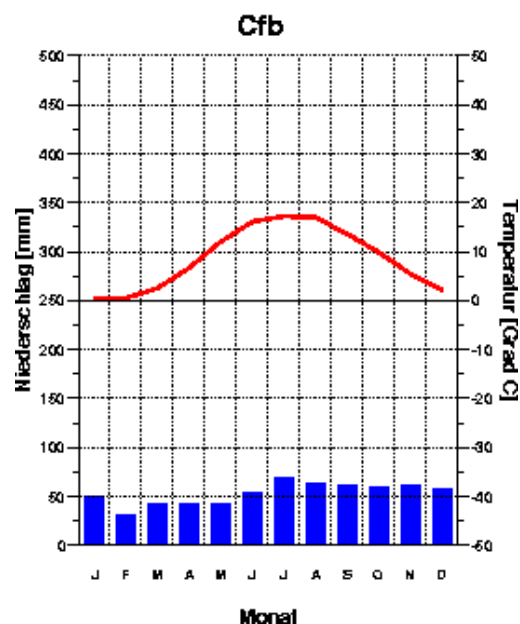




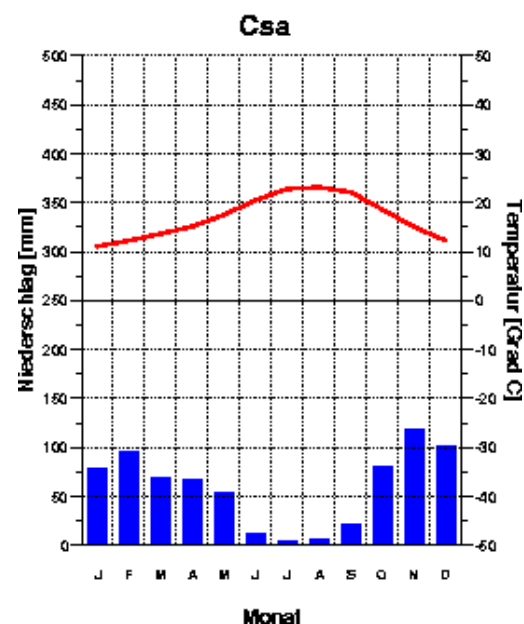
Mexico City
2308 m
16.5 Grad C
894 mm



Kopenhagen
9 m
8.6 Grad C
636 mm



Lissabon
95 m
17.1 Grad C
679 mm



Options to keep Goodeids:

Indoor or aquariumlike systems

- isolated from direct natural influences
- technical provided

Outdoor or pondlike systems

- directly influenced by nature
- independent from technical systems

Comparison indoor–outdoor, concerning the following factors:

- Temperature
- Light
- Nutriment
- Oxygen supply
- Predators
- Holiday season

Temperature

Indoor: usually quite constant temperature
achievement of changes in temperature quite expensive
(heater, timer)

Outdoor: circadian changes
monthly changes
other marked periods, singular and random happenings
(rainy periods, heat waves, thunderstorms)

Light

Indoor: artificial light (means energy)
light quantity limited (usually around 300-500 lux)
no or very few UV-light

Outdoor: daylight
light quantity may reach up to 100.000 lux at noon
constant presence of UV-light

Nutriment

Indoor: feeding necessary

artificial food, freeze-dried and frozen food from trade

live food from trade, raised or self-caught

Outdoor: feeding not necessary

algae, insects and larvae, aufwuchs, microorganisms,

pollen, blossoms, fruits, ...

Oxygen supply

Indoor: from plants
technical support (airpumps, filtration)
surface

Outdoor: from plants (overhang during the light period)
by wind
surface

Predators

Indoor: virtually not present

Outdoor: in current danger of predators

(mainly insects and their larvae, very rare snakes or egrets)

Holiday season

- Indoor:** up to 2 weeks no problem, periodically controls useful
(technical problems, water level)
longer holiday: care, automatic feeder
- Outdoor:** possible without any feeding and care for months

Conclusions:

- Outdoor systems are behaving different to indoor systems!
- Whenever it is possible, even only for a few weeks, bring your fish outdoors!

Different types of outdoor facilities – up to your decision!

Artificial ponds: fixed
difficult or impossible to drain (in autumn)
bigger volume – slow changes in temperature
possibility of mixed associations

Artificial containers: moveable
quite easy to drain (in autumn)
smaller volume – fast changes in temperature
normally only one species per container

The materials:

- Artificial ponds:** synthetic layer
(laying in the soil or above in a frame)
- Artificial containers:** synthetic material
 - glass tanks
 - planters
 - barrels
 - everything waterproofed and food-safe...

How and when starting?

- preparing pond or container best at the beginning of May (depends on trade providing aquatic plants)
- bringing out of fish not before mid of June (Central Europe, southern Europe earlier)
- best time to bring out the fish: around noon (highest day-temperature)

What doing in the summer?

- water changes? (at least filling up of containers)
- removing of aquatic plant and algae overhang
(Nitrate-elimination)
- removing of too many leaves (walnut)
- predator control
- feeding?

When bringing in the fish?

- In some regions of Southern Europe: perennial outdoor keeping possible
- In Central Europe till the end of September, sometimes October; in Scandinavia eventually a bit earlier (always keeping an eye on cold periods!)
- concerning ponds: the fish-drying should start at the beginning of September, repeat it several times, and accept that you can't get all fish

What species can be kept outdoors in summer?

Simply said: All species of Goodeids!

Examples of successful Outdoor facilities

Southern Europe (Portugal): **Miguel Andrade**

British Isles (UK): **Nigel Hunter**

Central Europe (Austria. Gemany): **Michael Köck,**
Günther Schleussner

Scandinavia (Denmark): **Martin Ravn Tversted, Lars Vig Jensen**



Miguel Andrade

photo left: pool of 2.000 litres, photo right: pool of 20.000 litres, both heavily planted.



Miguel Andrade

A lot of Goodeids („*Xenotoca*“ *eiseni* and *Ameca splendens*) and Killis (*Aphanius mento*)...



Miguel Andrade
but not only ...



Nigel Hunter

Section of his facility: containers with four corners...



Nigel Hunter
without corners...



Nigel Hunter

elaborated with plant nursery or totally simple...everything waterproofed is in use



Nigel Hunter

My absolute favourite: the cattle watering tank



Michael Köck

My very first outdoor facility



Michael Köck
Impressions...



Günther Schleussner
Winter and Sommer...



Günther Schleussner
Impressions...





Günther Schleussner

The best place: light and shadow



Martin Tversted/ Lars Jensen
Outdoor ponds with net against egrets



Mertin Tversted/ Lars Jensen
Serial outdoor ponds...

Besides Hobbyist facilities:

Prospective projects in public places:

- 1st Project: Each school its pool
- 2nd Project: Give me a fin!

1st Project: Each school its pool

School Pilot Project (Vienna, Cologne):

During session: fish in an aquarium system

Goodeids can be useful for a lot of topics: the biological model „fish“, behaviour, livebearing, conservation

During holidays: out with the fish into the pool (or the container)



Examples of small school-ponds

Goals and questions...

Goals:

- Sensization of teachers and young people
- Involve them in conservation ideas
- Give them the feeling of being important

Questions to solve:

- Where to with the surplus?
- Official permits are not easy to get in some cases

2nd Project: Give me a fin!

Planned project (first briefings done, Vienna):

Cooperation GWG and the city of Vienna: Maybe even a town twinning between Morelia and Vienna (and other cities in the future)

Idea: populate in summer 1 pool in the city with Goodeids, including the erection of legends to explain the project and the cooperation

Autumnal fish harvesting festival (Fiesta de los peces?)



The baroque „Karlskirche“ in Vienna, with the famous pond in the „Resselpark“ in front of it

Goals and questions...

Goals:

- Sensitization of people: citizens as well as tourists by legends and the possibility to see fish in front of a baroque church
- Chance to make a city-festival

Questions to solve:

- Pollution, theft of fish, draining of the pool several times per year
- Financing of the project and the festival

And finally, some fish to make you appetite...

I am grateful to have got the permission of Lars Vig Jensen, Martin Ravn Tversted and Susanne Schleussner to show the following photos of pond-raised fish.



Allotoca goslinei



Allotoca meeki



Allotoca diazi



Characodon lateralis



Llyodon furcoides



Allodontichthys hubbsi and *Skiffia francesae*



Zoogoneticus tequila and purhepechus



Characodon audax – El Toboso left, Guadalupe Aguilera right



Ameca splendens and Zoogoneticus tequila



Girardinichthys viviparus and *Skiffia francesae*

Thank you very much

Michael Köck