6199-4-2P AID:97222 | 09/02/2020

Given Data:

Length of the lake = 12 km = 12,000 m

Width of the lake = 2.5 km = 2500 m

Area of the lake = l x b = 12 x 2.5 = 30 km2 = 30 x 106 m2

Inflow for the month of March (Qin) = 3.26 m3/s

Outflow for the march of March (Qout) = 2.93 m3/s

Total precipitation during the month of March(P) = 15.2 cm = 0.152 m

Total evaporation during the month of March(E) = 10.2 cm = 0.102 m

Total estimated seepage during the month of March (Iout) = 2.5cm = 0.025 m

We need to find what is changing in storage during March. (Note: March has 31 days)

Inflow Qin = 3.26 m3/s

∴ which means Per second volume is = 3.26 m3

Per month, means 31 x 24 x 60 x 60 seconds, volume is =?

∴ Volume of water Inflow during March = 3.26 x 2678400 m3

Area of the lake = 30 x 106 m2

∴ Depth of water inflow

= 0.2910528 m

Outflow during March = 2.9 m3/s

Volume of water outflow during March = 2.93 x 31 x 24 x 60 x 60 = 2.93 x 2478400 m3

Area of the lake = 30 x 106 m2

∴Depth of water outflow during March

= 0.2615904 meters

Referring to the equation (4-3) from the chapter

S = P + Qin, + Iin - Qout - Iou t- R - E - T

= 0.152 + 0.2910528 + 0 - 0.2615904 - 0.025 - 0.102 - 0 - 0

= 0.4430528 - 0.3885904

= 0.0544624 m

∴ Volume change in storage during March = storage depth x area

= 0.0544624 x 30 x 106

= 1633872 m3